

JUNE, 1948

CHEMICAL PROCESSING

PREVIEW

The Magazine of
PROCESSING, ITS CONTROL AND DEVELOPMENT

In this issue

206 Articles of
developments in processes, techniques, materials,
equipment. See contents . . . page 4

What's A "New Solution"?

Each article in CHEMICAL PROCESSING Preview describing a new way of solving a tough plant operating problem. In each case you will find specific "case histories" showing how these processing problems were solved.

Each article states the operating problem . . . explains the process used and gives details of how problem was solved . . . shows results secured.

Take a look at "New Solutions" articles in this issue — they might suggest a "solution" for some of your tough processing problems.



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When inquiring check CP 5500 on handy form, pgs. 2-3

"That's Interesting"

Giant Magnet Has 200 Gauss at 24 Inches from Coal Mine Conveyor

A giant magnet claimed to be the strongest ever built has been installed in a southern coal mine to remove tramp iron from coal on an escalator. The magnet is suspended over a conveyor belt 2449 feet long and 42 inches wide which delivers a thousand tons of coal per hour from working level below ground. The magnet could not be placed any closer to the belt than 18 inches. To meet requirements a triple pole rectangular design was used with an extra amount of windings to give the necessary power at that distance. In order to dissipate the heat generated, ribs were placed on the sides, and aluminum extensions were run internally from the coil to the case to help in conduction of the heat. Factory tests the magnet proved to have 200 gauss at 24 inches from the surface. It will hold many times the weight of an automobile in a supporting cradle. (Dings Magnetic Separation Co., Milwaukee 14, Wis.)

Plastic Cellulose, Steel Plate "Sandwich" Protected Against Heat of 2200 Degrees

Human flesh that is exposed to heat of 2200 degrees within proximity of one inch can be protected by an amazingly thin panel. The panel is only one quarter of an inch thick and composed of specially treated cellular acetate plastic sandwiched between extremely thin sheets of carbon steel. The panel weighs less than one pound per square foot.

In tests the panel withstood 2200 degrees of heat for more than thirty minutes at the end of which time the side opposite to the fire could be held within one inch of the hand. (Ohmite New York Ohmite Mfg. Co., Chicago 44, Ill.)

Yellow Cover Makes Electrical Cable Visible in Dark

Yellow electrical cable which can be seen plainly in the dark has been developed by the United States Rubber Co. It will be made in various sizes for use on cutters, loaders, drills, locomotives and other mining equipment. The yellow jacket will enable miners to see the wire and keep it out of danger more easily than the conventional black cable. Sparks resulting from damaged electrical wire is a leading cause of mine explosion. The yellow cover is the second development completed recently by U. S. Rubber to reduce this hazard. The other development is a special cable which automatically switches the power off in the event of the cable being crushed under a mine car.

Nickel and Cobalt Plated on Metal Without Use of Electric Current

Through a method originated at the National Bureau of Standards, nickel and cobalt may be plated on metal surfaces without the use of electric current. Chemical reduction of nickel or cobalt salt with hypophosphite in hot solution accomplishes this.

A point of interest in connection with the process is the catalytic beginning of the reaction by the following metals: iron or steel, nickel, gold, cobalt, palladium, and aluminum. Unless one of these metals is introduced into the solution, no reduction takes place. The reduction then takes place only on the surface of the immersed metal, with the production of an adherent coating of 93 to 97 per cent purity. The coating vessel should be of non-catalytic material.

As the plated deposits can be made as hard as tool steel, the method may prove useful where hard, wear-resistant surfaces are required, as in bearings. The method is applicable to the plating of recesses and enclosed areas such as tubes where a centered internal electrode with special leads would be needed in electroplating.

(Continued on third cover)

As you read this issue, if you want more information on processes, controls or developments of products discussed herein . . .

ASK Our READERS SERVICE DEPT. . . . use this sheet

As you read articles or advertisements which interest you, on which you'd like more information . . . note key number under each. Check back to this sheet . . . verify the key number here by name of product discussed . . . check space provided.

Fill in your name, title, company, main product and address on reverse side of this sheet and mail to publisher's Readers Service Dept. Information will come to you direct, without obligation.

✓ Key	Description	✓ Key	Description	✓ Key	Description	✓ Key	Description
5500	Fluorine Compounds*	5583	Sterol Products	5606	Aluminum Fabrication*	5661	Pressure-Temperature
5501	Agitative System	5584	Paper, Water, Detergent	5607	Insecticide Materials	5662	Regulator
5502a	Alkaline-Resistant Pumps	5585	Compound	5608	Sealing Adhesive	5663	Gas Temperature Indicator
5502b	Acid-Resistant Pumps	5586	Vinyl-base Coatings	5609	Glass Block Mortar Sealant	5664	Ball Flow Indicator
5503	Ion-Exchange Demineralizers	5587	Synthetic Organic Chemicals	5610	Vinylite Resins	5665	Flow Meters
5504	Pressure Leaf Filters	5588	Sulfuryl Chloride	5611	Starches	5666	Flow Meters
5505	Box Car Loaders	5589	Methoxy Polyethylene Glycols	5612a	Manual Marking Inks	5667	Constant Voltage Transformers
5506	Distilling Apparatus*	5590	Copeal Strip Coating	5612b	Machine Marking Inks	5668	Titrimeter
5507	Ball Bearing Swivel Joints	5591	Foam Inhibitor	5613	Vinyl Plastic Stabilizer	5669	Liquid Level Gauge
5508	Chemical Feeders	5592	Bonded Filter Cloth	5614	Haveg Fabricated Equipment	5670	Electronic Registration Control
5509	Heat Transfer Equipment	5593	Brining Process	5615	Anhydrous Sodium Acetate	5671	Electronic Interval Timer
5510	Gas Leak Detector	5594	Chemicals*	5616	Plastic Cork Coating	5672	Proportioning Regulator
5511	Fischer-Tropsch Process	5595	Bromo-terephthalic Acid	5617	Paint & Varnish Resin Solution	5673	Manometers
5512	Light Beam Recorders	5596	Di(2-ethyl hexyl) iso-phthalate	5618	Radioactivity Measuring	5674	Solu Bridge Controller
5513	Steel Barrels & Drums	5597	Di-n-butyl-iso-phthalate	5619	Organic Gluconates	5675	Bin-Level Controllers
5514	Multiport Control Valves	5598	Diallyl-iso-phthalate	5620	Waxes	5676	Totalizing Flow Meter
5515	Vibrating Screens	5599	4,4'-Dicarboxy diphenyl ether	5621	Continuous Centrifugal Filters	5677	Float & Switch Unit
5516	Heavy Duty Bagger	5600	N-decyl-aldehyde	5622	Screens	5678	Radioactivity Meter
5517	Mineral Wool Base Roofing	5601	Acid-resistant Tape	5623	Vent Valves & Flame Arrestors	5679	Controller-Transmitter
5518	Injection-type Water Heater	5602	Newer Methods of Preparative	5624	Sediment Arrestors	5680	Explosion-Proof Switches
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5540	Electric Fork Trucks	5619	Surface Active Agent (P-129)	5642	Type E Galvanometer	5703	Album of Weldments
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5561	Flexible Metal Slings						Liquefied Gas Holders
5562	Valves						

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✓ Key	Description	✓ Key	Description	✓ Key	Description	✓ Key	Description
5722a	Horizontal Centrifugal Pump	5771	Blowers & Exhausters	5821	Oil Reclaimers	5873	Mineral Wool Blankets
5722b	Vertical Turbine Pumps	5772	Flow Control Valves	5822	Water-Vapor Refrigeration	5874	Centralized Lubrication
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5757	Silent Check Valve	5806	Pumps	5857	Drafters	5909	Roller Mills
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5759	Clamp Supports	5808	Paper Pulp Beater	5859	Spray Nozzles	5911	Welding Electrodes & Rods
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		5820	Cylindrical Roller Bearings				

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Name _____ Title _____
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*State briefly data desired

Fill in . . . mail to READERS SERVICE DEPT., CHEMICAL PROCESSING Preview,
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HIGHLIGHTS IN THIS

These articles have been selected by the Editors as having special interest

* Cuts Filter Time
plant boosts filtration
batches per 4-hr. period

* Finding Gas Leaks
locate inflammable gas
maintaining production

* 18 Stacking Arrangements
"Pushbutton palletizing"

* Packing Chemicals
fixed, 1-man routine system
of free-flowing materials

* Improved Paper Strength
kaline alumina source
acidity paper

* Foam Suppression
non-volatile agent useful
rubber, adhesive processes

* Low-temperature Solvents
Forms clear, viscous pastes
sizing, textile finishing,

* "Reduction to Practice"
How to protect priorities

* Continuous Process,
Tonnage Oxygen . . .
gaseous oxygen without
freezing shutdowns

* Fiber Measurement
accurate measurement and
of fiber-fineness

* Flow Properties
tendency curves show flow
paints, plastics, thixotropic

* Heat Recovery from Blast
Combustion of organic
constituents generates steam
covers chemicals

The Cover Picture

Pilot plant simultaneously
continuously produces high
purity oxygen and nitrogen. All
automatic. A vital factor in
temperature turbo-expander
be first produced in this
provides refrigeration at
low temperature for distilling
air into its components. As
appears on page 44.

For more information on
product advertised at right, see
CP 5501 . . . see information
quest blank between pages

HIGHLIGHTS THIS ISSUE

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... as having unusual
interest

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Cover Picture

... simultaneously and con-
... duces high purity oxy-
... gen. All controls are
... vital factor is the low-
... turbo-expander, said to
... ced in this country. It
... igation at extremely
... ure for distillation of
... mponents. Article ap-
... e 44.

... information on prod-
... ised at right, specify
... see information re-
... k between pages 2-3.

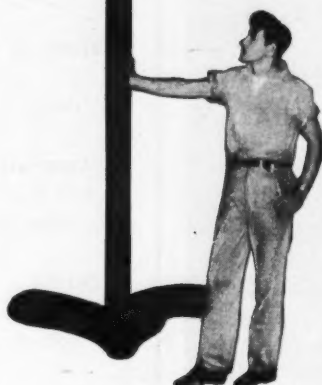
This AGITATOR

plus

This BAFFLE...

MEETS PRACTICALLY Every MIXING REQUIREMENT!

The Pfaudler Agitative System takes the guess-
work out of agitation ... enables you to prede-
termine specifications with simple calculations.

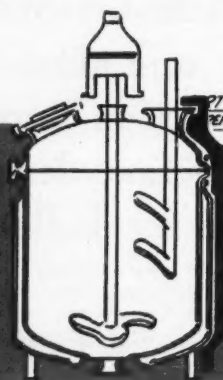
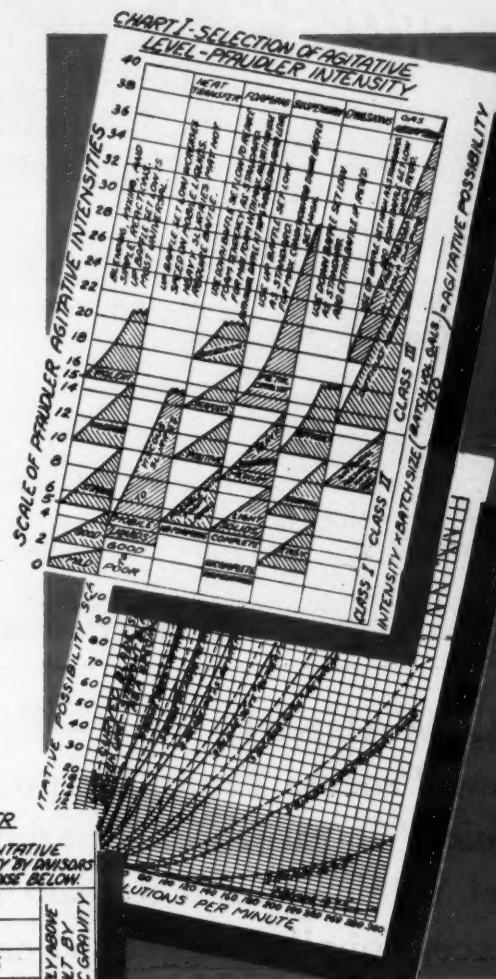


For years, Pfaudler engineers have been classifying mixing actions obtained with various types of glass-covered agitators and adjustable baffles in glass-lined reactors. Through these studies, definite mixing principles have been established as a practical guide in predetermining correct agitation specifications for both pilot plant and full scale operations.

Each factor in agitation—agitative intensity—size of agitator in relation to size of vessel—R.P.M. of agitator—H.P. required—has been worked into three selection charts. Reference to these charts is made in accordance with the

type of agitation required—simple blending, heat transfer, suspensions, emulsions, gas absorption, etc.

By cross reference to the charts and with some elementary arithmetic, you arrive at the proper agitation specifications with surprising accuracy. And the use of standard Pfaudler equipment keeps costs lower. A full description of the system as well as instructions on how to use the charts are yours for the asking. Use form below.



STANDARD PFAUDLER REACTORS HANDLE:

- SIMPLE BLENDING
- HEAT TRANSFER
- SUSPENSIONS
- EMULSIONS
- GAS ABSORPTIONS

CHART III - TO DETERMINE REQUIRED HORSE POWER

PRICE-PERRY'S HANDBOOK FILM, PAGE 1289

HOSE	COMMON MPTL 68°F	PERCENTAGE OF POWER REQD	DIVIDE AGITATIVE POSSIBILITY BY DIVISORS FOR CENTROPOSE BELOW
	WATER	100	20
	MED HEAVY MOTOR OIL	105	19
	GLYCERINE CASTER OIL	120	16.6
	WAGO CORN SYRUP	150	13.3
	MOLASSES	240	8.3

THE PFAUDLER CO.
Dept. CPP-6, Rochester 4, N. Y.

Send me details covering the "Pfaudler Agitative System."

NAME _____
COMPANY _____
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ENGINEERS AND FABRICATORS OF CORROSION RESISTANT PROCESS EQUIPMENT

PRODUCT OF THE MONTH

CHEMICAL PROCESSING PREVIEW

The Magazine of
Processing, Its Control and Development

VOL. 11

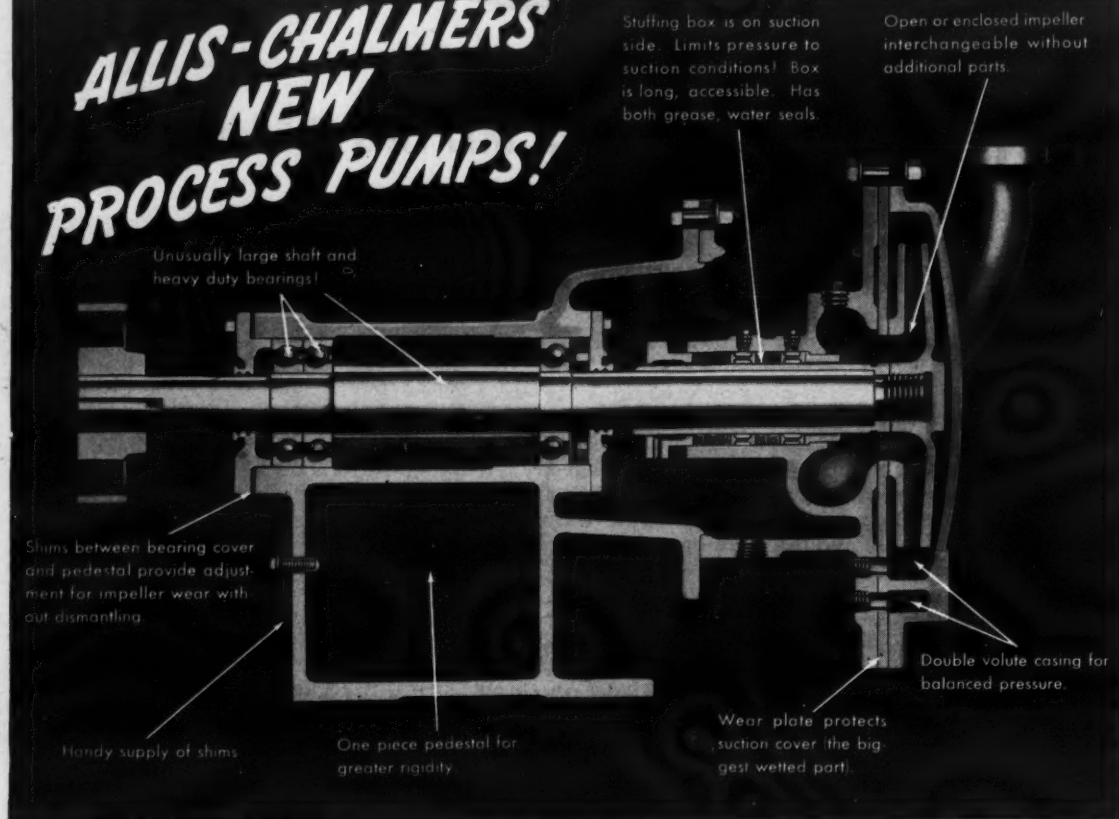
JUNE, 1948

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ALLIS-CHALMERS NEW PROCESS PUMPS!



MILWAUKEE, WIS.— Production upped on Allis-Chalmers new *Process Pump* for pumping *both corrosive and abrasive fluids*. It incorporates advantages of double suction pump, yet retains simplicity and low cost of single suction design. **Exceptionally rugged . . . easily accessible. Send for bulletin.**

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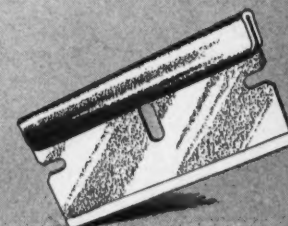


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VARNISH PLANT Cuts Filter-time 3¼ hrs. per Batch; Filters 850 gals. in 45 min's.

Processes 6-7 batches between cleanings, at 6c per 100 gals.

New Solutions OF PLANT PROBLEMS



Peeling spent layer of media from leaf, on filter rack, at end of varnish filtering cycle

PROBLEM — Large varnish plant had been using paper filters for a numbers of years to filter varnish. It took four hours for one filter to handle 850 gallons. A reduction in filtering time was desired in order to increase production. As the paper filter had to be broken down after every batch for cleaning, this also consumed a great deal of time due to the type of medium used and filter construction.

In addition, there was the usual inconvenience of storing the filter residue remaining in the filter tank.

SOLUTION — Old filter media was replaced with a pressure leaf filter which utilizes fiberized asbestos. The design of this filter follows the principle of the pressure leaf system of filtration. A cylindrical tank placed horizontally acts as the filter container. Filter screens are suspended vertically therein, and parallel to the axis. The varnish enters the container and passes through the filter screens from both sides. Each screen consists of a frame enclosing a heavier mesh screen, which is covered by two finer screens on either side. The heavy screen acts as a support for the finer ones and also as a spacer for the drainage of the liquid to the discharge channels, the channels being formed by placing several screens together. Almost any type of metal can be employed in construction.

In placing the filter in service, a given amount of fiberized asbestos filter material is mixed in a portion of the varnish in a mixing vessel. By pump recirculation, this mixture is rapidly deposited on the screens. The effluent filtrate then runs clear and free of turbid matter. Time required for this operation is about five minutes. This precoating completed and the filter bed formed,

filters are built in two tank sizes of 24 in. diameter and 36 in. diameter.

This system of pressure leaf filtration may be termed a "low pressure" system, since high flow rates can be obtained through the filter media used at remarkably low pressures. The actual pressure exerted on the filter layer starts at only two to three pounds and increases

actual filtration is started. The unfiltered liquid is allowed to enter the filter and the preformed filter layers act in their full capacity, delivering a clear varnish immediately. Filtration is continued by means of gravity from overhead tanks or by pump pressure. Trial runs quickly determine the grade of fiberized asbestos to use.

Other material such as diatomaceous earth, etc., are sometimes added to prolong filter cycle and prevent premature clogging action. The

in proportion to the amount and type of turbid material deposited on the layer. At the end of the filter cycle the pressure will be about 40 pounds. The bulk of the product will pass through the filter at a lower pressure, however (up to 10 pounds), so that gravity pressure can be used.

This filter features a patented filter door, constructed for rapid operation. A special lever and hand wheel eliminate the use of bolts and wrenches. The door can be closed or opened in less than fifteen seconds.

RESULTS — 850 gallon batch now filtered in 45 minutes. Six or seven batches can be handled before cleaning is required. The new filter has twice the filtering surface of the old. Even if filtering surfaces were equal, the new filter would be 2-1/6 times faster. An approximate cost of filter material per sq. ft. is .016 cent. Average cost for filtering 100 gallons is 6 cents.

Filter residue filtered at end of cycle. Close clarification is possible because of availability of many grades of filter material. Savings in space because filter layers are very compactly built into tank.

SOURCE — Hercules Filter Corp., Dept. CP, 204 21st Ave., Paterson, N. J., . . . or for more information check CP 5504 on handy form, pages 2 and 3.

Mechanized Method Quickly Tiers Bags for Safe Transit by Rail

*"Balanced" loads prevent shifting;
reduce damage, handling costs*

PROBLEM — Dow Chemical Co., Midland, Mich., must daily load hundreds of tons of bagged Dowflake into box cars in such a manner as to assure arrival at destination with an absolute minimum of damage. Adding to the difficulty of the job is the condition of the cars, many of which are old and battered, with rough flooring, sides full of holes and much of the interior protective lining missing. In fact, the bags of Dowflake must sometimes be loaded into cattle cars.

All this emphasizes the importance of careful, compact stacking of bags to avoid shifting in transit. To accom-

plish this, and keep time and labor within desired limits, suitable mechanization is required.

SOLUTION — Dowflake cars are loaded with the "Key-Bag" system. It is designed to keep shifting of the load at a minimum. The load is balanced and has a tendency to settle centrally rather than towards the outside of the car. A 40-ton car contains 14 full tiers of bags piled in rows lengthwise with the car, plus one narrow tier which is necessary to consume all the space. This is called the "Cub" tier and is placed two rows from either end of the car.



Bag-delivery at discharge deck end of loader eliminates any "lost motion"

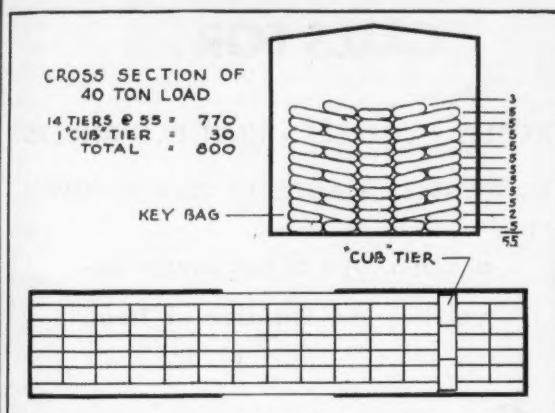


Diagram shows: 1) stacking "technique" that induces load to settle centrally and 2) position of "Cub" tier

Bags in the door area are recessed several inches to permit easy opening of doors and prevent tearing of bags.

In mechanizing the loading operation a unit embodying five conveyor sections is used. At one end of these assembled units bags are received as they come down a chute. The endless conveyor belt which is supported by the various sections carries bags to door of car.

Additional units carry bags through door and to point in car where bags are being stacked. The units are moved around as the car becomes more fully loaded.

The conveyor speed is 78 fpm. The loader moves in and out of car. Conveyor is not started until machine is in position at end of car. Optional accessories include (1) Bag counter mounted on elevating conveyor, (2) Power raising or elevating conveyor, (3) Signal bell which rings while machine is being moved.

RESULTS — Method of stacking gives balanced load that resists shifting, movement and damage to bags, under all average shipping conditions. The box car loader speeds up handling of bags, eliminates most manual effort, quickly delivers bags to point of stacking operation and reduces chances of any possible damage to bags in transfer from plant to interior of car.

SOURCE — The box car loader is made by Manierre Engineering & Machinery Co., Dept. CP, Colby-Abbot Bldg., Milwaukee, Wis. . . . or for more information check CP 5505 on handy form, pages 2 and 3.

DISTILLATION AND EQUIPMENT DESIGNED FOR EVERY PROBLEM

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When inquiring check CP 5506 on handy form, pgs. 2-3

COLOR

FOR EASIER IDENTIFICATION



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MAXIMUM PRESSURE
300 psi GREEN
MAXIMUM PRESSURE
1,000 psi BLUE
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3,000 psi .. ALUMINUM
MAXIMUM PRESSURE
12,000 psi RED
MAXIMUM TEMPERATURE
500° F, 700 psi . YELLOW

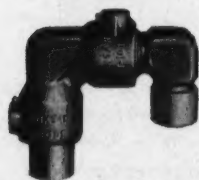
WRITE FOR THE NEW CHIKSAN CATALOG which gives complete data.



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BALL-BEARING SWIVEL JOINTS FOR ALL PURPOSES

When inquiring check CP 5507 on handy form, pgs. 2-3

New Solutions OF PLANT PROBLEMS

Wet Chemical Feeder Incorporates Newer Design Features; Wet, Dry Feeders Listed

12-page, 2-color bulletin describes and lists applications of various types of liquid feeders, gravimetric and volumetric dry chemical feeders, particularly suited for water treatment and liquid conditioning. Section is devoted to the "Decantrol" which is a wet chemical feeder embodying several new features: automatic raising of decanting pipe by same motor that lowers it; signal lamp to direct attention to operating factors; remote electrical control to permit most convenient water meter location; micrometer-controlled feeding rate; positive non-slip feeding chain; use of synchronous motor for accurately maintained feeding rate.

Drawings and photographs show principles of design and operation of the various types of feeders. Cutaway view illustrates application of the "Decantrol". Accessory equipment, as chemical tanks and pumps, meters, are shown and described. Bul. 14, issued by Liquid Conditioning Corp., Dept. CP, 114 E. Price St., Linden, N. J. When inquiring specify CP 5508 on handy form, pages 2 and 3.

★ Detects Gas Leaks in Line Without Stopping Production

Use of helium leak detector eliminates fire hazard, prevents product loss

PROBLEM — Production records showed that unaccounted for losses of an inflammable hydrocarbon gas were taking place in a chemical processing plant. Since this created a fire hazard, which was even more of a hazard because the leak was in an unknown location, it was desirable to locate the leak as quickly as possible.



Typical method of "sniffing" for leaks with probe using leak detector

Aside from the safety viewpoint, it was advisable, from a purely economic standpoint, to prevent the loss of gas to the atmosphere.

An additional obstacle was the fact that the process could not be shut down for the length of time necessary to individually check all flanged connections, replace



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CONDENSERS • AUTOCLAVES • COLUMNS

or other type of equipment involving the transfer of heat.

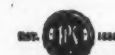
Call on PATTERSON-KELLEY



Equipment of this kind is our specialty...has been, in fact, for many years. We are staffed with competent engineers to help design units to meet your requirements if our standard units do not fit the picture. Our engineers understand processing and the practical application of the principle of heat transfer.

And we have the manufacturing facilities and the skilled workmen to produce exceptionally well-made heat-transfer units such as listed above.

When inquiring check CP 5509 on handy form, pgs. 2-3



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When inquiring check CP 5509 on handy form, pgs. 2-3

gasketing materials, etc. The relatively small loss could not be detected by the common "soap-and-water" method.

It was possible to narrow the leakage zone to somewhere in a long run of large pipe which had numerous flanged tees, other connections, meters and valves installed along its length.

SOLUTION — A Consolidated Model 24-101A leak detector was obtained. Essentially, this is a simplified portable mass spectrometer designed for the single purpose of detecting minute traces of helium. The Diatron (mass-spectrometer tube) is an integral part of the unit which includes a fore pump and auxiliary pump to keep tube under vacuum, power circuit for the tube and enclosed filament, and an amplification system that operates a visual leak-rate meter and an audible alarm, the latter of which varies in pitch and intensity as the concentration of helium being detected by the tube.

The tube accomplishes electronic separation of helium molecules from all dissimilar molecules in the atmosphere being examined. For this particular application the unit is used with a sampling or "sniffing" probe which can be moved around the suspected area of leakage.

Small amounts of helium were introduced into the upstream end of the suspected length of pipe. These amounts were on the order of 1-2% of the gas flow and, in this case, did not have any effect on the following process steps.

As the helium was being injected, one man simply and quickly checked all connections in the pipe line with the probe, keeping a record of any high leak rates and marking their locations. The audible signal quickly called his attention to these points, and comparative readings were then checked on the leak-rate meter before moving on.

RESULTS — Exact locations of leak were quickly and simply found without shutting down for any appreciable length of time. It was possible to temporarily shut down to replace gasketing where necessary, but this shut-down time was at the minimum because gasketing could be preformed for the particular location in which it was to be installed before breaking the line.

Losses were removed and the production schedule was returned to normal. The safety hazard was eliminated.

SOURCE — The leak detector described is manufactured by the Consolidated Engineering Corp., Dept. CP, 620 N. Lake Ave., Pasadena 4, Calif. . . or for more information check CP 5510 on handy form, pages 2 and 3.

★

Synthetic Petroleum Process Is Subject of 304-page Treatise

"Synthetic Petroleum from the Synthine Process" is a 304-page, illustrated treatise covering the process known in Germany as Fischer-Tropsch, and identified in this country under various trade names. Subject matter includes methods of production, theoretical and engineering phases; purification of the synthesis gas; catalytic synthesis reactions; products, by-products and derivatives; advances in German technology; current developments; basic economics.

Includes classified list of more than 2,000 patents and articles, an indexed list of government reports, and a supplemental bibliography. Authored by B. H. Weil and J. C. Lane. Price \$6.75. Remit direct to Remsen Press Division, Chemical Publishing Company, Inc., Dept. CP, 26 Court St., Brooklyn 2, N. Y. Or, when inquiring specify CP 5511 on handy form, pages 2 and 3.

JUNE, 1948

A NEW BECKMAN INSTRUMENT...

The

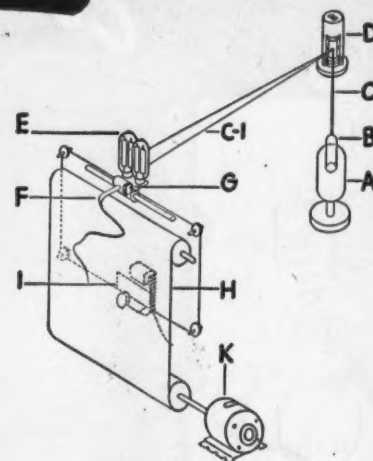
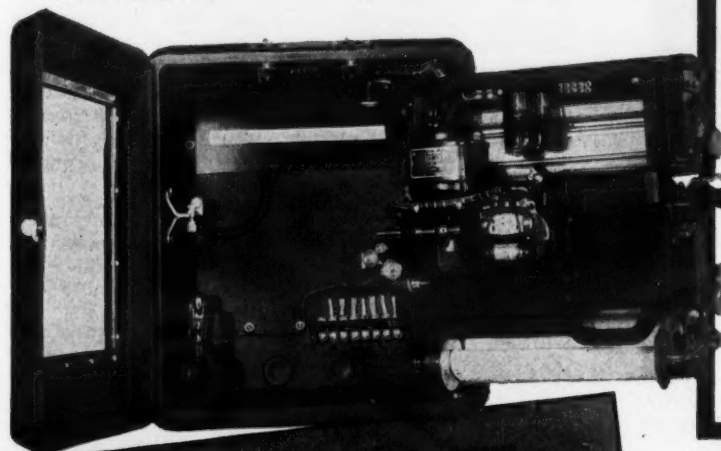
Photopen

RECORDER

A Unique High-Speed Light Beam Recorder
Based on Original Pompeo-Penher Design*

The Photopen Recorder is an important advancement which provides direct high-speed pen recording of light beam deflections. A light beam entering through a slit in the back of the recorder case strikes a unitized photocell-pen assembly. As the light beam moves, the photocell-pen assembly shows the movement, producing an accurate ink trace of the positions of the light beam. As little as 0.1 mm deflection causes a corresponding movement of the pen on the strip chart.

The Photopen offers many advantages, including high sensitivity, fast response, and unusual convenience for a variety of applications in which the position of a moving light beam is to be recorded.



OPERATING PRINCIPLE OF THE BECKMAN PHOTOPEN RECORDER

The basic operating principle of the Beckman Photopen Recorder is shown in the schematic drawing above. A light beam (c) projected from the light source (a) through the lens (b) to the galvanometer mirror (d) is deflected from the mirror through a slot in the back of the Recorder case where it strikes two photo-tubes (e) and through an amplifier controls and operates the reversible motor (i). When the deflected beam (c-1) deflects to the left photo-tube cathode, the pen carriage (g), mounting both the photo-tubes and recording pen (f), moves to the left. When the beam deflects to the right photo-tube cathode, the pen carriage assembly moves to the right. When the beam (c-1) is centered between the cathodes, the pen carriage assembly remains stationary. Recording chart (h) is turned at a uniform rate of speed by the drive motor (k) throughout the entire operation, thus permanently recording beam fluctuations.

THERE ARE MANY VALUABLE APPLICATIONS FOR THE PHOTOPEN RECORDER

The Photopen answers the need for a highly sensitive, convenient recorder for such applications as determining differential temperatures between opposing thermocouples such as in thermal analysis work . . . recording current-voltage curves in polarographic analyses . . . recording ion currents in mass spectrographic work . . . recording galvanometer deflections in infra-red spectrophotometry . . . recording deflection of torsion balances, including film balances as used in determining surface tensions . . . recording deflections from strain gauges for measuring beam deflections . . . recording progress and results of tests run on certain types of profilometers . . . recording mirror deflections in radiometers and certain types of microphotometers.

*D. J. Pompeo and C. J. Penher,
Rev. Sci. Inst., 13, 218, (1942).

BECKMAN

The Photopen Recorder is another in the extensive line of Beckman Instruments for modern research and industrial control operations. Write for full details. Beckman Instruments, National Technical Laboratories, South Pasadena 11, California.

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When inquiring check CP 5512 on handy form, pgs. 2-3



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Down come container maintenance costs when you use barrels and drums of Enduro—because this lustrous metal resists corrosion, resists hard use and abuse, never needs repainting or refinishing and lasts indefinitely. Enduro is safe to use, too, because it neither affects nor is affected by most chemical and food products.



You'll find just the style and size you need in the NILES Line. Write us for further information.

★ ★ ★
Easy to open—easy to close—that's the patented Ringlox closure shown at the left. It insures a positive and permanent seal.

**NILES STEEL PRODUCTS DIVISION
REPUBLIC STEEL CORPORATION
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NILES
METAL BARRELS AND DRUMS



When inquiring check CP 5513 on handy form, pgs. 2-3

Page 10

New Solutions OF PLANT PROBLEMS

Valve Saves Coke, Cuts Pig Iron Cost; Protects Furnace Air Line

Makes possible efficient blast operation at 40 psi; passes 6,900 tons air daily

PROBLEM — The pressure and velocity at which air is admitted is of the utmost importance in order to avoid extraordinary loss of coke and lime from the top surface as dust. Of particular interest is the bearing on pig iron cost, coke consumption and furnace capacity. Because uniformity of pressure is necessary to maintain velocity, a means for providing instantaneous relief with no pressure rise is essential in protecting the air line when air supply is increased to new high levels.

SOLUTION — Experiments and development work have been carried on by Republic Steel over the past ten years. For normal operation at top pressures of 2 psi and bottom pressure of 22 psi, utilizing 75,000 cfm of air, Republic converted its Cleveland No. 5 blast furnace to take 113,000 cfm of air which required a bottom pressure of 30 psi and resulted in a top pressure of 12 psi.

Recent developments include further increasing air supply to 125,000 cfm at 40 psi. The instantaneous relief required is provided by a special 24-inch horizontal multiport relief valve. This is fitted with a hydraulic cylinder and special control designed to relieve instantly at 40 psi. Springs alone give slight instantaneous relief, but to provide maximum openings immediately, with little or no pressure rise, hydraulic control is used for the valve discs.

RESULTS — With the initial increase of air supply, velocity was reduced from 65' to 50 feet per second. The contact time of the reducing gases with the ore has been increased from about 1 1/2 to 2 seconds. Pig iron manufacturing costs are cut by more than a dollar per ton, coke consumption is reduced about 12% and furnace capacity increased 20% with a simultaneous reduction of dust and increasing pig iron quality.

SOURCE — This application utilizes multiport valves made by Cochrane Corp., Dept. CP, 17th & Allegheny Ave., Philadelphia 32, Pa. . . or for more information check CP 5514 on handy form, pages 2 and 3.

★

Mineral Wool Tank Roofing Withstands Tropic Conditions

Resists attack on inside of oil tanks by hydrogen-sulphide fumes and moist air

PROBLEM — Metal-plate tank roofs last from only six to eight years in the tropical Gulf Coast area. At the end of such approximate periods it is necessary to re-roof petroleum tanks. Confronted with the problem of re-roofing fifty 55,000 barrel tanks, Petroleos Maxicano sought better roofing materials that would meet the following qualifications: (1) rugged enough to support workmen; (2) it had to be no heavier than 3/4 inch steel plate, and (3) it had to be elastic enough to withstand excessive heat expansion and contraction caused by tropical sun and frequent showers.

SOLUTION — A roofing material of a mineral wool cement base was selected. It is poured in place to a two inch thickness. The reinforcing to be seen in one

LINK-BELT "CA" CONCENTRIC ACTION VIBRATING SCREEN



**An Improved
Medium for the
Efficient Sizing
of Materials . . .**

The "CA" Concentric Action Vibrating Screen is used for both medium and heavy duty sizing of a large variety of materials, as well as for scalping and dewatering or rinsing operations. It is made in a wide range of sizes.

The heart of the "CA" screen is the Link-Belt two-bearing vibrator. Located near the center of gravity of the screen box, this ingenious and highly effective unit imparts a smooth, positive, circular motion to all screening surfaces. It starts and stops without "bounce," reducing shock on mechanism and frame. Write for Book No. 2154.

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The CONSOLIDATED Model 105

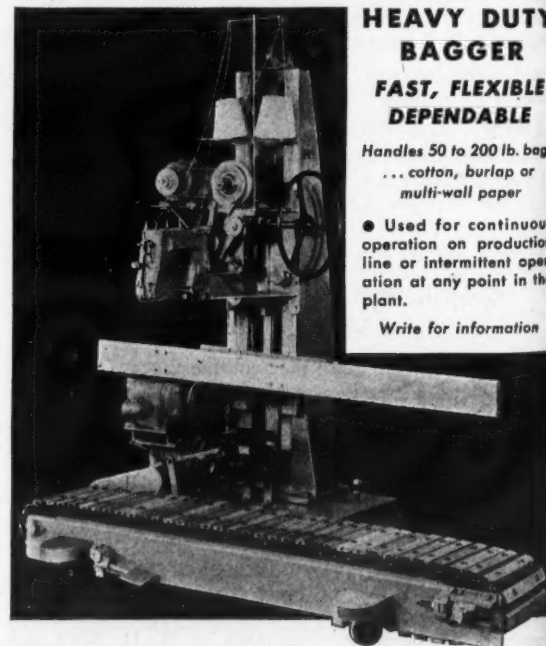
HEAVY DUTY BAGGER

**FAST, FLEXIBLE
DEPENDABLE**

Handles 50 to 200 lb. bags
... cotton, burlap or
multi-wall paper

● Used for continuous
operation on production
line or intermittent
operation at any point in the
plant.

Write for information



CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N. Y.

When inquiring check CP 5516 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



Effect of interior fumes, sun-heat and rain on roof metal-plate of oil tanks in Gulf Coast area

of the pictures is 12-gauge wire mesh. The insulating qualities of the roofing contribute to maintenance of more uniform temperatures inside the tank. Losses by evaporation, wind-drift, and breathing of the more volatile fractions of the stored crude oil are reduced to a minimum.



Applying mineral wool cement base roofing on wire mesh reinforcement

RESULTS — Indicated life of the new roofs is several times that of the former metal type. Beam strength will support normally encountered weight or shock. The mineral wool cement base roof is waterproof, lightning-proof and withstands expansion and contracting conditions that prevail. Actual costs are approximately those of previous roofing.

SOURCE — Industrial Mineral Wool Institute, Dept. CP, 441 Lexington Ave., New York, N. Y., . . . or for information check CP 5517 on handy form, pages 2 and 3.

★

Small Steam-Water Mixer Furnishes Isolated Locations with Hot Water

Small steam and water mixer to provide hot water at isolated points where steam is available, is described in 2-color bulletin. Use of this mixer eliminates piping of hot water long distances or installation of separate conventional water heater. Cut-away diagrams and photographs show operation, installation and construction. Capacity and dimension tables are included. Capacities range from 70 to 250 gal./hr., depending on steam pressure and desired water temperature rise. Available in 1½" pipe size.

Bulletin 900, issued by the Sarco Company, Inc., Dept. CP, Empire State Bldg., New York 1, N. Y. When inquiring specify CP 5518 on handy form, pages 2 and 3.

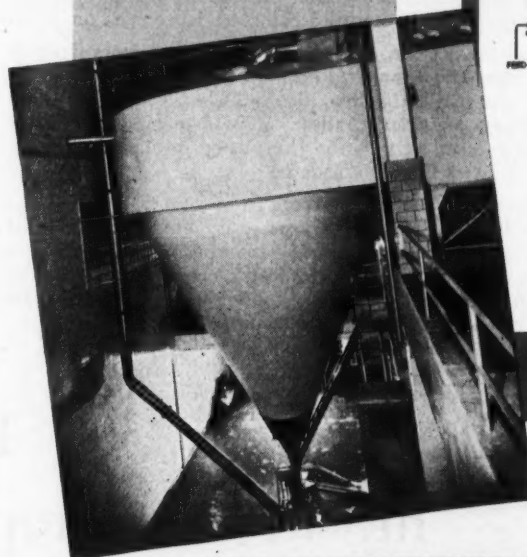
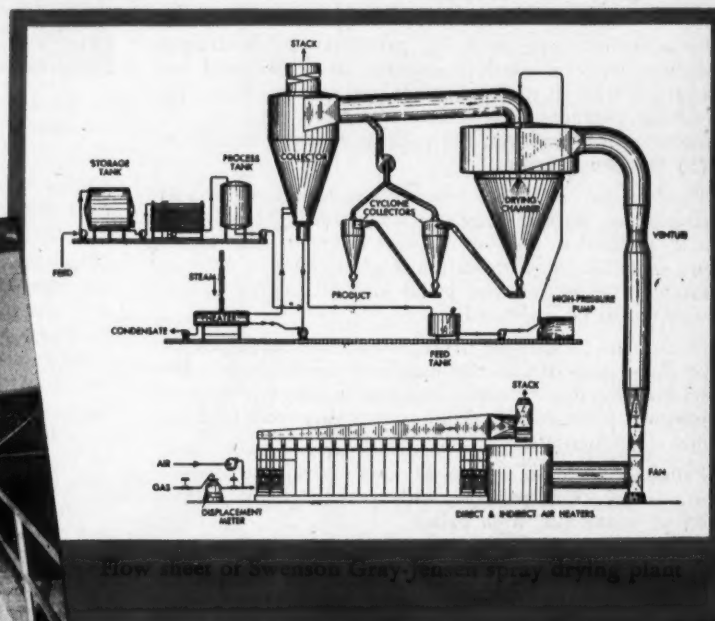
JUNE, 1948

SPRAY DRYING

with the Swenson Gray-Jensen Process offers these important advantages...

Swenson Gray-Jensen Spray Drying is now successfully used in the production of such materials as zinc sulfate, manganese sulfate, pentaerythritol, starch, cascara, and dried distillers' solubles. By means of plant-scale test runs in Swenson's new Spray Dryer Research Plant, procedures are established and equipment is adapted to various chemical processes. This service is performed at reasonable cost. We invite your inquiry.

- 1 Complete recovery of solids—no loss.
- 2 High thermal efficiency—heat in exhaust gases from drying chamber is recovered by second-stage use in liquid collector.
- 3 Low operating labor cost.
- 4 Controlled uniformity of product.
- 5 Protection to heat-sensitive materials—no contamination.



SWENSON EVAPORATOR CO.
DIVISION OF WHITING CORPORATION
15667 Lathrop Avenue Harvey, Illinois

Export Department: 30 Church Street, New York 7, N. Y.

When inquiring check CP 5519 on handy form, pgs. 2-3

Automatically Loads 25-30 Cases, Cartons on Pallets, Discharges Them Fully-loaded

Feeds in empty pallets; 18 stacking arrangements allow push-button selection to cover majority of case sizes

Material Handling

USES — Automatically loads cartons, cases, paper bags (with slight modification) onto empty pallets. Feeds in empty pallets, discharges fully-loaded ones.

FEATURES — Completely automatic, including feeding of pallets; automatically stops loading if pallet supply runs out. Packages from case-sealer may come at any speed because machine is independent of conveyor line. Excess packages over predetermined rate of machine are held back by accumulator roll, through its switches.

Use of stack pattern electrical control unit allows push-button selection of 18 stacking arrangements and allows handling of majority of standard cases manufactured in volume by average company.

Each button, operating its particular predetermined stacking pattern, controls sequence to be followed and arranges stack as to (1) number packages per layer, (2) number packages rotated or not rotated per row, (3) number rows per layer, (4) package spacing, if any, and (5) number of layers.

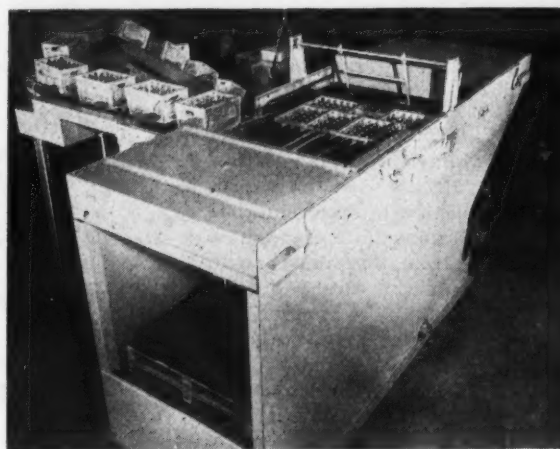
Thus, loader can handle different size cartons, pattern arrangements, stack-variations readily, allowing many alternate production lines to be switched into one loader, just so sufficient accumulation is allowed before entering machine for at least one pallet load of each carton size required to be palletized.

More than 18 stacking arrangements are made possible by installation of a second electrical panel cabinet. Pre-set machine may be easily changed by simple wiring adjustment if production requirements vary from predetermined estimations.

Palletizes 25 to 30 cartons or cases per minute, depending on length of package, with total height of stack of 65½" above a 6" high pallet.

DESCRIPTION — Control mechanism is series of relays, each relay a mechanical switch. As first package trips control switch, relay number one is closed, which activates first operation in predetermined stacking cycle. First carton may or may not be rotated, depending on stacking arrangement. It is then moved into machine on live roll conveyor.

As second package trips control switch, number one relay disengages and number two relay engages. As subsequent packages enter machine, line-up of packages may or may not be rammed or stripper plate may or may not operate, depending on which relay has been activated. Thus, for predetermined sequence, first 4 packages may be rotated, next 2 rows of 3 each not rotated, forming one layer. As first layer is placed on pallet, next row may be rotated to cross-tie units, making solid pallet load. Ram mechanism, on top of machine and to rear of powered rollers, is activated each time a row of packages has entered machine. Activation is set up by following unit entering machine and this is delayed by



Pallet loader showing cases ready to be fed. Stripper plate returns to position over lowered cases. Pallets in foreground.

a stop, until ram has placed row on stripper plate. As each row is pushed by ram, previous row is pushed farther back on plate until a complete layer rests on plate.

When loaded, stripper plate is withdrawn from beneath the layer allowing it to be placed on pallet located approximately ¾" below plate. Pallet is then lowered thickness of package, allowing plate to return to accept another load. Operation is repeated until desired number of layers has been made up.

Fully-loaded pallet is lowered to bottom of machine and expelled by chain drive. As it is being expelled, one of empty pallets stored in rear of machine is brought forward and raised by elevator arrangement to position below stripper plate. This is done while plate is receiving load, therefore flow is uninterrupted.

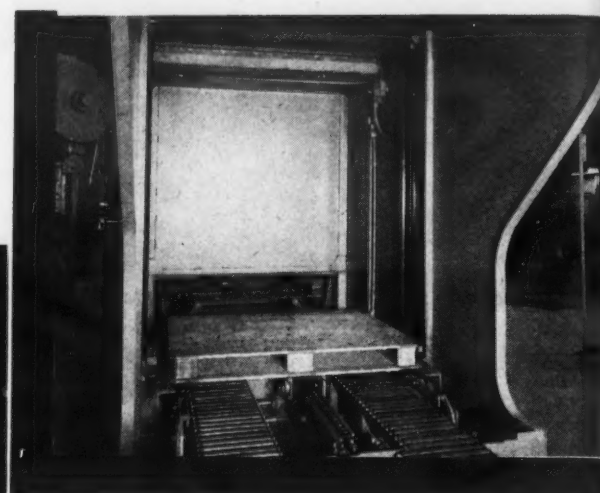


Illustration shows empty pallet compartment and method of bringing pallet into place to receive cases.

10 pallets are accommodated in rear of unit. Pallet compartment is kept filled by same fork truck operation which takes loaded pallet off the pallet accumulator roller. Total power requirements approximate 6½ hp.

Manufacturer offers special conveyor system installations which allow for automatic selectivity of varieties of products where carton sizes are same but each variety must be palletized separately. These systems allow products, from various sources converging in single conveyor, to be selected by product and accumulated in respective bins before being selected by push button control for palletization.

Manufacturer also has other material handling aids based on variations of this unit. One is automatic drum or barrel loader which palletizes filled oil drums up to 55 gal. Another is a pallet unloader especially adapted to industries handling an influx of empty cases on pallets. Third is ingenious barrel rack for quick and easy handling.

SOURCE — This Pallet Loader is a development of Production Aids, Inc., Dept. CP, 6842 Beck Ave., North Hollywood, Calif. . . or for more information check CP 5520 on handy form, pages 2 and 3.

Fills, Weighs 300 Fifty-pound Bags per hr. in Non-stop 1-man Routine

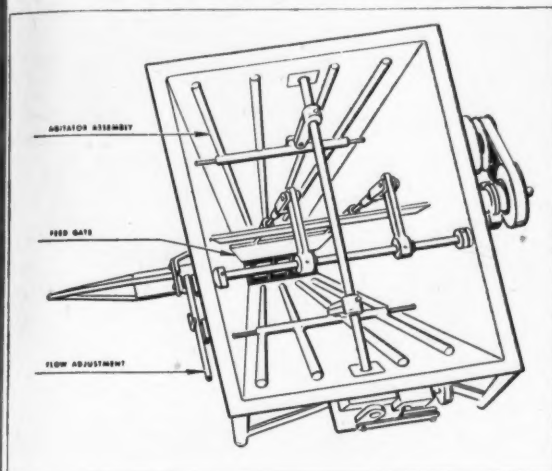
Accurately packs drums, barrels, open-mouth and valve bags with insecticides, chemicals

USES — High-speed bag packer for filling and weighing drums, barrels, open-mouth and valve bags. For fully packing finely divided materials such as insecticides and chemicals, in wide range of densities.

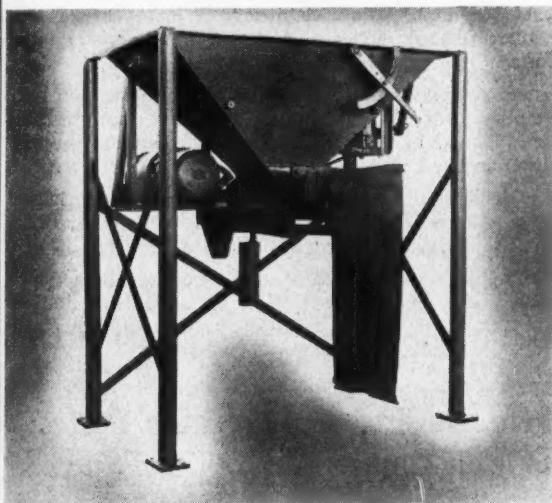
FEATURES — Non-stop one-man operation. No lifting to and from scales. No waste. Easily adjusted counter-balance mechanism packs pre-determined weights within ounces.

Twist of wrist adjusts flow to desired rate. Handy button starts smooth, constant, full-flow feed from hopper to bag. No hammering on hopper: special design automatically keeps materials free-flowing at all times. Full packing saves bag-material, storage space, and assures full value. Minimum change-over time.

DESCRIPTION — Unit consists of balanced, reinforced frame supporting light-weight sheet steel hopper. Agitators adjacent to inner walls keep materials flowing freely through 2 x 4' opening to packing mechanism.



Top-interior view of bag packer machine. Agitators keep materials free-flowing at all times



Bag packer, without hopper. Automatic weighing mechanism saves bag-material and storage space

Easily handles 300 fifty-pound bags per hr., manufacturer reports. Smaller and larger containers handled at proportionate speeds. Push-button packing mechanism includes feed-gate and agitator assembly, driven by electric motor. Handle adjusts rate of flow.

Weighing is automatic. Adjustable counter-balance rests on pivoted beam, one end of which is integral with bag-support, the other operating against a switch-operated beam-stop. Beam contacts the stop, assuring positive control of pre-determined weight.

SOURCE — H. L. Stoker Company, Dept. CP, 111 S. College Ave., Claremont, Calif., is the maker . . . or for more information check CP 5521 on handy form, pages 2 and 3.

LINK-BELT BULK-FLO

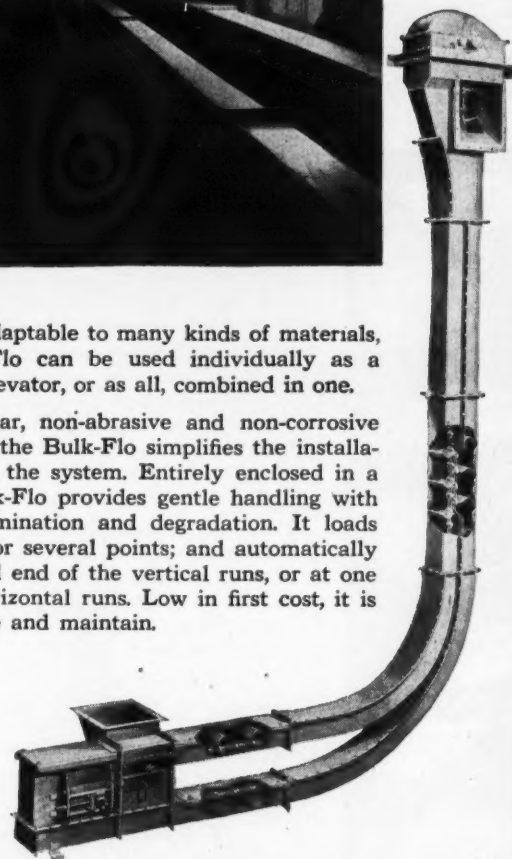
serves as
ELEVATOR-CONVEYOR-FEEDER



COMPACT and adaptable to many kinds of materials, the Link-Belt Bulk-Flo can be used individually as a feeder, conveyor or elevator, or as all, combined in one.

When bulk, granular, non-abrasive and non-corrosive materials are carried, the Bulk-Flo simplifies the installation and operation of the system. Entirely enclosed in a dust-tight casing, Bulk-Flo provides gentle handling with a minimum of contamination and degradation. It loads automatically at one or several points; and automatically discharges at the head end of the vertical runs, or at one or more points on horizontal runs. Low in first cost, it is inexpensive to operate and maintain.

Ask a Link-Belt Materials Handling Engineer for suggestions on Bulk-Flo and/or other types of handling equipment for your plant. Meanwhile, send for Book No. 2175 today.



LINK-BELT COMPANY

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.
Offices Factory Branch Stores and Distributors in Principal Cities. 11,000

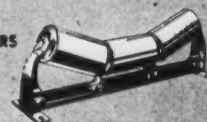
LINK-BELT

CONVEYING MACHINERY

When inquiring check CP 5522 on handy form, pgs. 2-3

OTHER TYPES OF LINK-BELT CONVEYING MACHINERY

BELT CONVEYORS

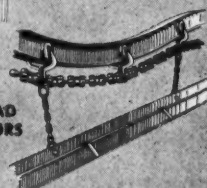


SCREW CONVEYOR

BULK-FLO
Elevator-
Feeder
Conveyor



BUCKET ELEVATORS

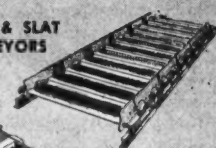


OVERHEAD
CONVEYORS

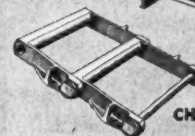
OSCILLATING
FEEDER-CONVEYORS



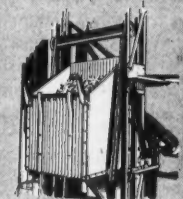
APRON & SLAT
CONVEYORS



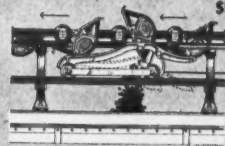
CHAIN CONVEYORS



FLIGHT CONVEYORS



SKIP HOISTS



BUCKET CARRIERS
AND ELEVATORS



No other Equipment
as **VERSATILE!**

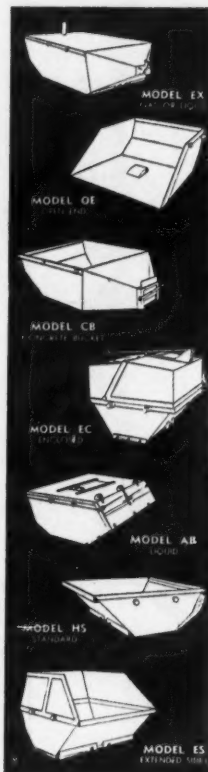


**YOUR TRUCK COULD HAVE
30 BODIES
50 USES!**

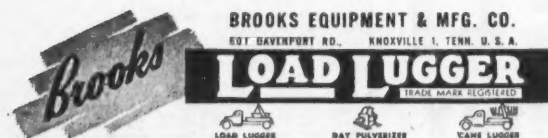
● You'll think of 50 uses for the Brooks Load Lugger system of loading, hauling and dumping materials of all types in and around your plant. Industries all over America have installed Load Lugger hydraulic hoisting units on some of their trucks and are using them with 10 to 30 detachable truck body containers each — spotted wherever needed, for collecting rubbish, residue, periodic accumulations, non-recurring loads, and for hauling carboys, moving heavy equipment, supplying materials to the operation, etc. Bodies interchangeable in seconds — the same truck does it all! One-man operated.

MATERIALS HANDLING SOLVED

Whether you are concerned with solids, crystals, liquids, gas or powders — Brooks engineers can design a system of containers to solve your particular materials handling problem. The 7 standard models shown at right are available in 1 to 10 cu. yd. capacities. Others built to your requirements.



WRITE FOR CATALOG and names of closest plants employing this labor and equipment saving system.



When inquiring check CP 5523 on handy form, pgs. 2-3

Material Handling

Steel Belt Conveyor Adds Sections to Save Costs

*Provides solid, strong, heat-resistant,
moving table for 10' to 175'*

USES — Powered steel belt conveyor for movement of materials.

FEATURES — Can be used for distances from 10' to 175' by additions of sections between basic head, or drive, section and takeup section. Manufacturer reports that this method provides custom engineering without "special engineering costs," and saves shipping costs.



Flex-E-Unit conveyor

DESCRIPTION

— Basic unit comprises a head or drive, section and takeup section at opposite end. Each of these basic sections is 5' long and when combined, form the basic 10' steel conveyor. 4' or 5' sections may be added between the head and takeup sections to lengthen conveyor and keep a solid, moving table.

Heavy-gauge steel flights and chain are one integral unit for smooth operation within range. Resistant to heat, and capable of handling exceptionally heavy loads. Belt can be tilted and jigs or fixtures bolted to flights for rapid assembly work. Mounts on sturdy steel legs or at floor-level.

Made in 4 widths from 12" to 36", in either 3" or 6" pitches. Rated at 30 fpm. Other sizes and speeds are available, if desired. Manufacturer will install correct drive to assure ample power for specific installations.

SOURCE — The Flex-E-Unit steel belt conveyor is a development of the Sermat Conveyor Corp., Dept. CP, 2350 W. 58th St., Chicago 36, Ill. . . . or for more information check CP 5524 on handy form, pages 2 and 3.

★

Installs on Fork Truck to Easily Handle Barrels, Drums

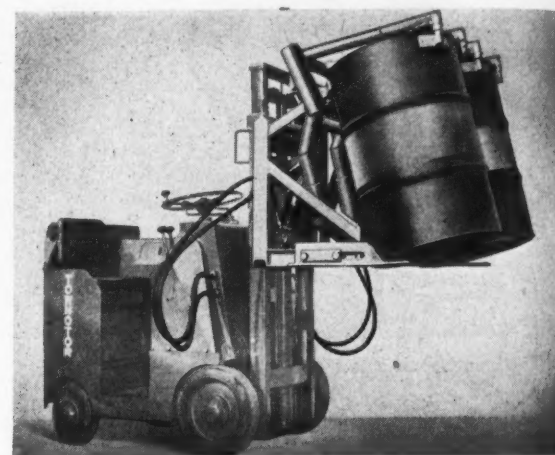
*Quickly-removed attachment stacks single or
paired drums tightly into corners*

USES — Installed on any hydraulically-operated fork truck, equipment will handle drums, barrels, kegs.

FEATURES — Easily and quickly removable when desired, thus permitting truck to perform dual role. Said to give easy, effortless, low-cost handling. Only 2 control levers. Will accommodate any size of containers

listed above. Picks up containers singly or in pairs, tiered or otherwise, and sets them down where wanted, even solidly into corners.

DESCRIPTION — For straight loading or unloading operations, either box car or truck, a 2,000-lb. capacity fork truck is recommended. Maximum flexibility has been obtained by incorporating special chine clamps as



Fork truck attachment easily handling 2 drums

standard equipment in addition to the regular tilting arms provided. These clamps serve in much the same manner as hook device now in use on two-wheel barrel truck.

Where chine clamps alone will serve, arms may be completely removed. Likewise, if arms are more suitable for containers handled, arms may be lifted out of the way. Either method is at immediate option of operator.

Weights 500 lb. and is made of heavy gauge channel stock with welded construction. Said to be practically indestructible and to give a lifetime of service.

SOURCE — The "Drum Master" is one of the products of William Ehlers, Dept. CP, 408 S. Spring St., Los Angeles, Calif. . . . or for more information check CP 5525 on handy form, pages 2 and 3.

★

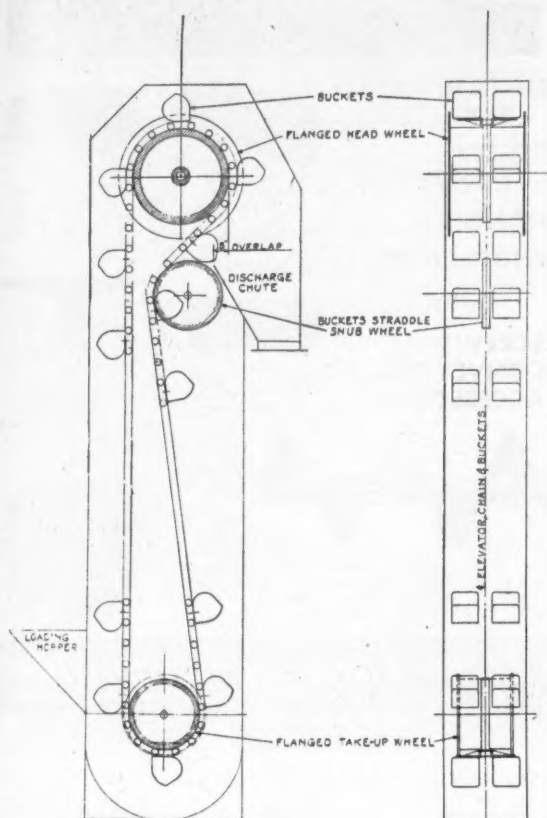
Bucket Elevator Permits Perfect Discharge at High, Low Speeds

*Handles hot, fluffy, coarse, abrasive, fine, sticky,
other materials, with no changes*

USES — Bucket elevator for handling hot, light, fluffy, fine, coarse, abrasive, fragile or sticky bulk materials.

FEATURES — Dual buckets permit higher capacity at either high or low speeds. Perfect discharge permits handling of above materials without maintaining any particular ratio between bucket speed, head wheel diameter, bucket size and bucket spacing. Perfect discharge, unaffected by spacing or feed of buckets. Shallow pit only required, since elevator does not require chain, sprockets, pins, etc. No uneven wear or stretch, maker states.

DESCRIPTION — Single-strand chain, perfect discharge, duplex bucket elevator. 225° chain contact around flanged, pulley-type head wheel permits use of traction drive, eliminating use of shear pins and slip couplings. Omission



Perfect discharge dual bucket elevator

of teeth in head wheel reduces wear on chain. Head wheel has diameter fixed for maximum speed.

Variable capacities are obtained by varying bucket spacing and chain speeds. Casings are smaller for given capacities, but stronger due to square, box-girder design.

SOURCE — This improved type bucket elevator is a development of the Beaumont Birch Co., Dept. CP, Schaff Bldg., Race St., Philadelphia, Pa. . . or for more information check CP 5526 on handy form, pages 2 and 3.

★

Bulletin Lists Features, Types of Mine Conveyors and Sections

16-page, 2-color, well-illustrated bulletin describes each of the conveyor sections comprising complete conveyor for underground operation. Difference is defined between the three types of mine conveyors made by manufacturer: Type I for level and uphill operation; Type IS for level, uphill or downhill operation, all with head drive and internal or tail takeup; and Type H for level operation with head drive and tail takeup.

The rigid and demountable types of intermediate sections, made in 8' and 10' lengths, are fully described. Clearances, weights and other specifications for the conveyors are presented in table. Features and advantages are detailed. Bul. 127. Issued by Robins Conveyors Div., Hewitt-Robins Incorporated, Dept. CP, 270 Passaic Ave., Passaic, N. J. When inquiring specify CP 5527 on handy form, pages 2 and 3.

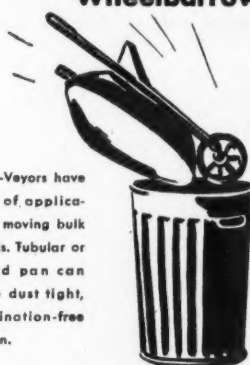
How **AJAX** LO-VEYORS

MAKE IT EASY TO CUT NON-PRODUCTIVE COSTS

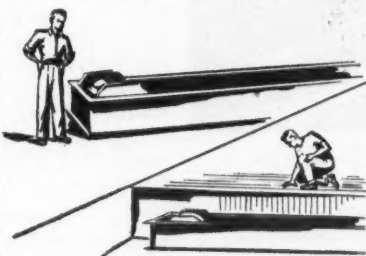


Throw Away Your Wheelbarrows

Ajax Lo-Veyors have dozens of applications in moving bulk materials. Tubular or covered pan can provide dust tight, contamination-free operation.



On, Above, or Below Floor



Can be installed under railroad tracks for unloading hopper cars . . . can be set on the floor . . . can be installed below floor level . . . can be suspended from wall or ceiling. Ajax Lo-Veyors are complete units delivered ready to use.

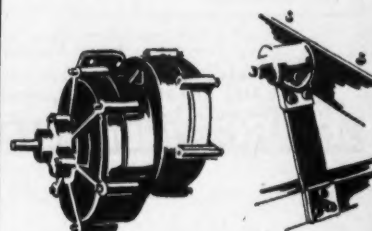
Short or Long Carries

5 FEET OR MORE



You can use Ajax Lo-Veyors for moving material distances of 5 ft. and up. Material can be moved from one operation to the next . . . plant layouts can be rearranged

Unharmed by Abrasives



Ajax Shaler-Shaker drive unit is completely enclosed and runs in oil. Rubber bushed conveyor pan supports require no lubrication and are unharmed by abrasive materials. Ajax Lo-Veyor design eliminates conveyor belts, rollers, idler pulleys and bearings.

You need no longer think of conveying equipment as expensive. In fact, Ajax Lo-Veyors not only cut costs of handling bulk

material but are low in first cost and low in operating and maintenance costs.

Under present conditions, savings on handling material are one of your most important opportunities for cost reduction. Ajax Lo-Veyors are being used by the Who's Who of Industry for moving dry materials,—explosive and non-explosive. Their record of satisfaction is one of their strongest recommendations. Write telling us what you have to move.

AJAX FLEXIBLE COUPLING CO. INC.

WESTFIELD, NEW YORK

When inquiring check CP 5528 on handy form, pgs. 2-3



This
BAKER TRUCK
Box Score Indicates
a Winner!

Case History of 6 Baker Fork Trucks
in service at Appliance Division, The
Cavalier Corp., Chattanooga, Tenn.

OPERATION	RESULTS WITH BAKER TRUCKS
Unloading steel sheets from gondola cars and storing (50 tons per car)	48 man hours cut to 4. Formerly took 6 men 8 hours for unloading alone—now 2 men unload and store in 2 hours.
Handling sheets from stores to production	More man hours saved, aisles kept clear.
Handling and storing dies	Time and storage space saved.
Moving cases of finished products to storage	Operation speeded 50%. Warehouse capacity increased 50%.
Loading finished products into box cars	16 man hours cut to 1. Formerly took 4 men 4 hours to load a car. Now 1 man does it in 1 hour.

Let a Baker representative show you how you can improve your Material Handling Box Score.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Company
2163 West 25th Street • Cleveland, Ohio

Baker INDUSTRIAL TRUCKS

When inquiring check CP 5529 on handy form, pgs. 2-3



Cut Your Strapping Costs!

SIGNODE A-2 Seal-Feed Strapping Machine!

ONE tool—THREE operations—tensions... cuts... seals. Operates efficiently on bales, boxes, bundles, cartons, crates, etc... straps pallets and skid loads. Handy where strapping jobs are widely separated. Especially satisfactory on conveyor line operations, with or without the use of tool mounts.

Lightweight, the A-2 saves time and energy for the worker, speeds production, cuts strapping costs. Inexperienced operators quickly develop speed and skill. For full details, mail coupon below.

SIGNODE STEEL STRAPPING CO.
2658 N. Western Ave., Chicago 47, Illinois
Gentlemen: Please send us fully descriptive folder on your new A-2 Self-feed Strapping Machine.

Name.....
Address.....
City..... Zone..... State.....

When inquiring check CP 5530 on handy form, pgs. 2-3

Page 16

Material Handling

Elevates, Lowers or Moves Materials Horizontally

Combination medium-duty belt conveyor offers 3 variations, common power

USES — General-purpose, medium-duty belt conveyors for straightaway, incline, elevating or lowering applications with all types of commodities.

For rubber plants, many other types of industries.

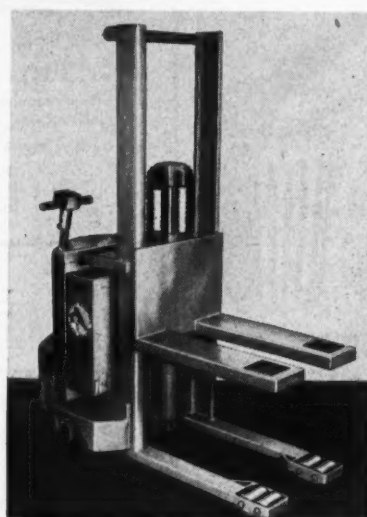
FEATURES — Adaptable to many conditions and circumstances. Universal and economical.

DESCRIPTION — Combination unit consisting of 3 variations or types: the medium-duty horizontal unit for straightaway conveying, medium-duty incline roller bed cleated booster for conveying up inclines of 28 to 40, and incline belt with automatic horizontal feed and discharge section for elevating and lowering. Power, idler or take-up units are common to all 3 types.

SOURCE — A development of Island Equipment Corporation, Dept. CP, 101 Park Ave., New York 17, N. Y. . . . or for more information check CP 5531 on handy form, pages 2 and 3.

★ Unloads, Stacks Up to 4000 lbs. in Congested Areas

Battery-propelled mover has all controls in handle-head; takes pallets, bins, platforms



"Jackstacker" materials-mover

USES — Special hand-lever, battery-propelled lift truck for use where narrow aisles, congested areas, or limited floor and elevator capacities prohibit use of conventional fork trucks or other heavy equipment.

For loading and unloading capacities up to 4000 lbs., at freight cars. For moving and stacking materials on skid platforms, double or single-faced pallets, or in sectional bins.

FEATURES — Construction permits raising and lowering lifting carriage while truck is in motion without moving handle or moving away from handle-head. Designed for adequate traction when navigating ramps, sills or uneven floors. Compact, maneuverable.

DESCRIPTION — Available in 4 models: counter-weighted for double-faced pallets; straddle-type, also for double-faced pallets; open-end base with lifting arms for single-faced pallets, and platform-type for skid-platforms. Master drive unit, including traction

THE "HAMMOND" Line

ELEVATOR
BUCKETS
SCREW
CONVEYOR
HANGERS
END-THRUSTS

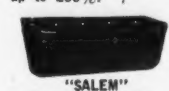


"NU-HY"
The patented design of this bucket offers highest efficiency in elevating granular materials, increasing capacities up to 100%.



"NU-TYPE"
Nothing like it for elevating flour and other soft stocks. Doesn't pack. Discharges clean.

and
SCREW
CONVEYOR
ACCESSORIES



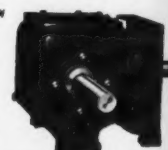
"SALEM"
Improved design. Made in standard and heavy gauges.



STREAMLINED
HANGERS
Designed to offer minimum obstruction to flow of materials.



Helicoil or
Sectional
Flight Screw
Conveyor.



"ACE"
COUNTER-
SHAFT
BOX ENDS
A revolutionary improvement in Screw Conveyor Drives.

Write for Catalog 147, illustrating the many outstanding material handling developments we have to offer.

Screw Conveyor Corporation
690 HOFFMAN ST. HAMMOND, IND.
ENGINEERS PRODUCTS MANUFACTURERS
TRADE MARK REG. U.S. PAT. OFFICE

When inquiring check CP 5532 on handy form, pgs. 2-3

ELIMINATE HELP--Cut your payroll!
Use the
SABIN One-Man TRUCK
for
DRUMS, SHOP BARRELS, WOODEN BARRELS



Type "L-3"

EASY LOADING. Operator simply runs truck up to container, hooks on at top, pulls back on handle and truck is loaded automatically.

CAPACITY. Up to 800 pounds.

EASY ROLLING. Roller bearings enable pushing or pulling with amazingly little effort.

THIRD WHEEL. A feature which insures better balance, added safety, and enables loaded truck to stand alone.

Write for
BULLETIN
48-A

THE SABIN MACHINE CO.

6534 Carnegie Ave., Cleveland 3, Ohio

ALSO TOTE PAN, BOX, CARBOY, KEG TRUCKS!

When inquiring check CP 5533 on handy form pgs. 2-3

CHEMICAL PROCESSING Preview

The **SMALL** hoist with the **BIG** hoist features

The Titan is a compact, lightweight, electric hoist; easily installed, simple to operate. It is inexpensive to buy, costs practically nothing to operate, handles loads up to 750 pounds; is fast and makes handling safer for both men and materials.

Ask for further information on this time saver and production increaser; also for Titan Bulletin 801.

Titan ELECTRIC HOIST

- 1 Trolley Suspension for traveling on a monorail.
- 2 Hook Suspension—hang up and use anywhere.
- 3 Plug In—use single phase lighting current; but made also for multi-phase power.
- 4 Cone Drive—continuous contact, the latest in worm gearing.
- 5 Push-Button Control; quick, convenient and safe.

**DETROIT HOIST
& MACHINE CO.**
8222 Morrow Street
Detroit 11, Mich.

When inquiring check CP 5534 on handy form, pgs. 2-3



THE NEW IRONBOUND **ROL** TRUK LIFTS GRIPS & CARRIES

PAPER ROLLS, KEGS, REELS

• The RolTruk easily lifts and moves heavy cylindrical objects, yet is non-complicated in design. One of the features is the hold-down arm which securely grasps the roll in a vise-like grip and finger-tip release catch must be manually disengaged before the roll can be released. Thus accidents are prevented and damage to product is eliminated. The RolTruk can be adapted to handle many items. If you have a cylindrical product write the Ironbound engineering department. Recommendations made without obligation.

IRONBOUND
BOX & LUMBER COMPANY
Materials Handling Division
65 HOFFMAN PLACE • HILLSIDE, N. J.



SEMI-LIVE SKIDS
SKIDS • DOLLIES
FLOOR TRUCKS

When inquiring check CP 5535 on handy form, pgs. 2-3

Material Handling

mechanism, is mounted on articulated linkage for adequate traction.

Electro-hydraulic lifting, lowering and gear-drive traction units are battery-powered through series-wound electric motors. All controls, including 2 speeds forward and reverse, raising and lowering, horn button and key switch, are mounted in handle-head. Connections between battery and drive unit are solid, flexible. Safety electric brake applies automatically when handle-triggers are not held down. Drive unit assembly can be changed in 20 min's., manufacturer reports.

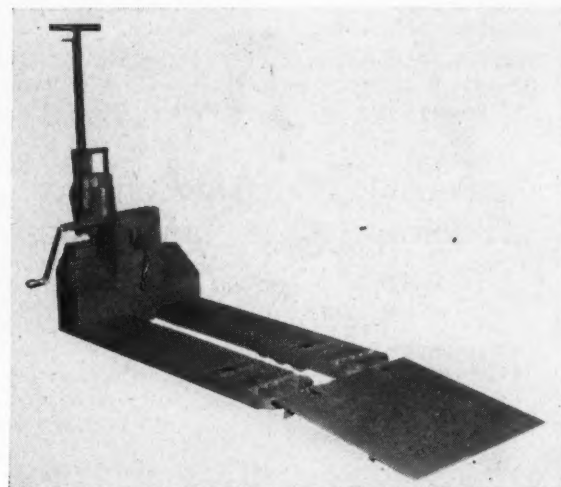
SOURCE — Made by Lewis-Shepard Products Inc., Dept. CP, 285 Walnut St., Watertown 72, Mass. . . . or for more information check CP 5536 on handy form, pages 2 and 3.

Use of Winch, Ramp, Lift Truck Solves Handling of 3-ton Cases

*Substitutes mechanical handling for slow,
unsafe manual methods*

USES — Handles heavy cases weighing up to 6,000 lb.

FEATURES — Ramp and winch arrangement on manufacturer's standard pallet type hydraulic lift truck allows easy rehandling of heavy cases which were formerly moved manually, a slow and dangerous method.



System for handling heavy cases. Note ramp in place and winch installed in truck

DESCRIPTION — Winch is used to draw case up ramp and onto 3-1/4" high truck platform to get into position for transportation. In storing case, load is wheeled into position and truck is elevated 4". Blocks are placed under overhanging sides of case, truck is lowered and removed and case rests on supports. In this position it can be easily moved again by bringing truck into position and elevating it to raise load from supports.

Ramp is hinged and readily removed. Winch is furnished with 15' of steel cable.

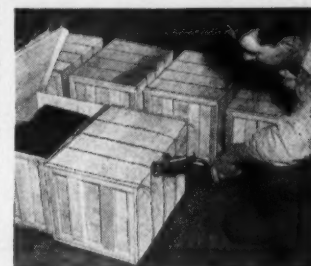
SOURCE — This system was developed by LYON-Raymond Corp., Dept. CP, 4678 Madison Street, Greene, N. Y. . . . or for more information check CP 5537 on handy form, pages 2 and 3.



CUTS COSTS WITH

General Boxes

Fafnir Bearing Company, manufacturer of thousands of different types and sizes of bearings, packs many of its products in General Wirebounds. Illustration shows workman speedily securing box with toggle type closing tool. Write us today on how you, too, can save time, space and materials by packing your products in General shipping containers.



ALL TYPES OF ENGINEERED SHIPPING CONTAINERS

GENERAL BOX COMPANY

★★★★★

GENERAL OFFICES:

522 N. Dearborn St., Chicago 10, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Natchez, Continental Box Company, Inc.: Houston, Dallas.

When inquiring check CP 5538 on handy form, pgs. 2-3

Write for this new *Bulletin* TODAY

Get the facts
on how you can
save on
DRUM CLOSURES



When inquiring check CP 5539 on handy form, pgs. 2-3

NEW YALE ZEPHYR ELECTRIC FORK TRUCK

PUTS **ZIP** INTO HANDLING
IDEAL FOR TRUCK AND CAR LOADING

ASK FOR A DEMONSTRATION!
Cap.—1000,
1500, 2000 lbs.



YALE THE YALE & TOWNE MANUFACTURING CO.
4530 Tacony Street • Philadelphia 24, Pa.
HAND LIFT AND ELECTRIC TRUCKS • HAND AND ELECTRIC HOISTS • SCALES

When inquiring check CP 5540 on handy form, pgs. 2-3

Up and Over

is the name of a twenty minute
16 MM sound film showing
AMERICAN MONORAIL
OVERHEAD HANDLING
EQUIPMENT at work.

If you have a handling problem,
may we suggest you
show this film to the people
in your company most
interested.

It takes you into plants where
AMERICAN MONORAIL
equipment is saving thou-
sands of dollars a year.

Please write well in advance
of schedule for showing.

THE AMERICAN MONORAIL COMPANY
13109 Athens Ave. • Cleveland 7, Ohio

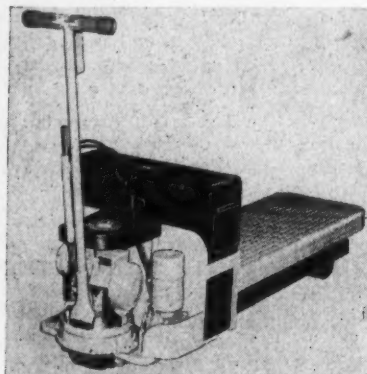
When inquiring check CP 5541 on handy form, pgs. 2-3

Page 18

Material Handling

Motorized Platform Truck Has Quick Speed Selection

2-speed forward, 2 reverse control is on handle;
handle push-buttons control lift



Motorized hand platform truck
trol lifting and lowering. Short over-all length provides
easy operation in narrow aisles, etc.

DESCRIPTION — Built in 4,000 and 6,000 lb. capacities.
All welded steel construction for long service. Truck can
be operated with handle in vertical position. Has low
battery and motor mounting which prevents top heaviness
and makes for greater stability.

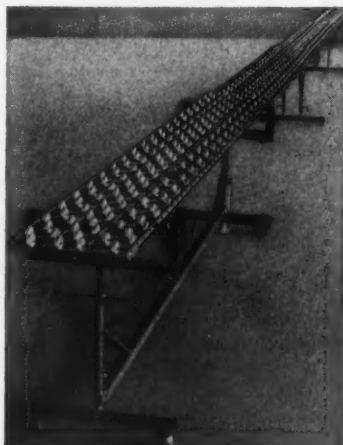
SOURCE — Manufactured by The Moto-Truc Co., Dept.
CP, 1953 E. 59th St., Cleveland 3, Ohio . . . or for more
information check CP 5542 on handy form, pages 2-3.

USES — Motor-
ized hand plat-
form truck for
material move-
ment in aisles,
etc. of plant.

FEATURES —
Simple and con-
venient control
gives two speeds
forward and two
reverse by twist
of wrist on easy-
grip roller-type
handle. Push-
buttons, in ends
of handle, con-

Portable, Durable Conveyor Telescopes for Confined Areas

Compressed or extended while loading,
unloading trucks, freight cars



Portable telescopic gravity conveyor

spaces. Light for portability but strong enough to carry any-
thing a conventional conveyor can. Quickly adjusted in
length, height and pitch.

DESCRIPTION — Consists of from 2 to 4 ten foot sec-

USES — Portable
telescopic gravity
conveyor is used for
any short haul inside
or out. Can be com-
bined with other
conveyors for long
haul, supplement
existing systems or
set up for permanent
installations. Particu-
larly useful in load-
ing and unloading
trucks and freight
cars.

FEATURES — Can
be extended or com-
pressed as work
progresses, hence is
valuable in confined

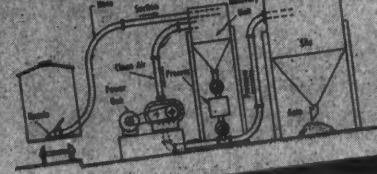
Save
TIME
and LABOR
•
LOWER
YOUR
COSTS . . .
with this
**BEAUMONT
PNEUMATIC
CONVEYOR**

● This Beaumont Pneumatic Conveyor
System is tailored to the requirements of
the process industries. With it, you can
move ores and fine, crushed or granular
chemicals anywhere a pipe can be run.
It's efficient in operation—saves time and
labor and reduces handling costs.

The Beaumont Conveyor can be supplied
to utilize suction or pressure or a combi-
nation of both, as illustrated. Sizes are
available for capacities from 1 to 100
tons per hour.

Since the job and material to be conveyed
determine the general design of the
system—your best bet is to acquaint us
with your particular problem and let us
quote on the most efficient type and size
to serve your needs.

Combination—Empties by Suction—Delivers by Pressure



BEAUMONT BIRCH COMPANY
1516 RACE STREET • PHILADELPHIA 2, PA.

Designers Manufacturers Erectors

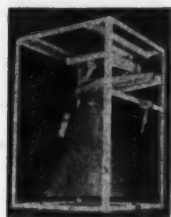
When inquiring check CP 5544 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

SYNTRON

"Vibra-Flow"

DRY FEEDER MACHINES



with vibrated,
non-arching hoppers

are Complete
Units
for the
CONTROLLED
FEEDING

of dry, bulk materials to
processing machinery.

Supply hopper equipped with SYNTRON electro-magnetic Vibrator to assure a free flow of material to the "Vibra-Flow" Vibratory Feeder which in turn controls the flow of material. They can be scale-controlled in filling large or small containers to weight, or controlled by pH indicators, venturi meters, etc.

Write for catalog data

SYNTRON CO.

110 Lexington, Homer City, Pa.



When inquiring check CP 5545
on handy form, pgs. 2-3

Material Handling

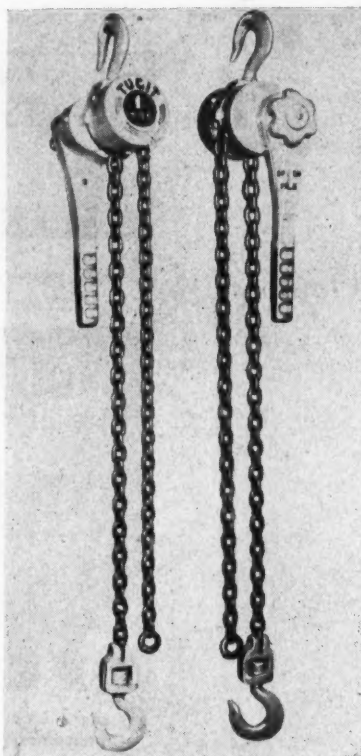
tions which run in or out of each other on channel steel rails, in step-down arrangement. Height and pitch are adjusted by exclusive fingertip jack-screw adjustment on loading end and easily-operated turn screws on telescoping sections.

Compressed length is 10 feet. Includes 3" casters for rolling, and pressure brake lock.

SOURCE — Manufactured by the Wilkie Company, Dept. CP, 5520 Arch St., Philadelphia 39, Pa. . . or for more information check CP 5546 on handy form, pages 2-3.

1 or 2-ton Lever Hoist Operates Through Load Brake, Gear Train

Short lever permits handy storage, working in confined areas; anti-friction bearings



Back and front of 1-ton lever hoist

erated by a lever; therefore, it is easier to stow in tool boxes and may be operated in more confined spaces.

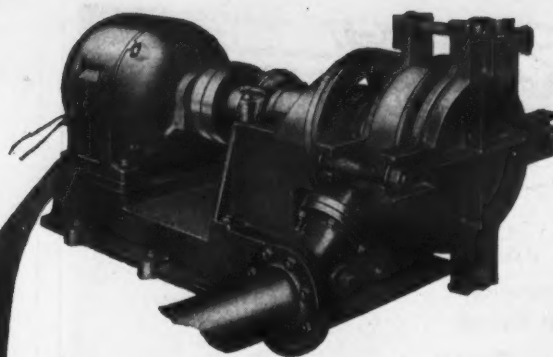
DESCRIPTION — The "Tugit" is available in 1 and 2-ton capacities. It is rated on the basis of standard chain blocks, namely, in even tons instead of the usual rating on lever-operated hoists of $\frac{3}{4}$, 1- $\frac{1}{2}$ tons capacity, etc. Load brake is Weston type. Operating handle is 12" long. One-ton unit weighs 14- $\frac{1}{2}$ lb., two-ton weighs 18- $\frac{3}{4}$ lb.

SOURCE — Development of the Shaw-Box Crane & Hoist Div. of Manning, Maxwell & Moore, Inc., Dept. CP, Muskegon, Mich. . . or for more information check CP 5547 on handy form, pages 2 and 3.

USES — Hoist for moderate lifting jobs in the plant.

FEATURES — New conception of lever-operated hoist. Instead of effecting hook movement by ratchet wheel integral with lifting sprocket or pocket wheel, this unit is built like hoist with gearing, load brake acting on first gear reduction. It is also equipped throughout with anti-friction bearings for easy operation. For instance, 40 lb. pull on handle lifts 2000 lb.

Operating lever is considerably shorter than on other hoists op-



ITS 4 FEATURES ASSURE CONTINUAL LOW-COST MOVEMENT OF MATERIAL

- 1 **EASILY DISMANTLED**—Impeller and shaft sleeve can be renewed without disturbing the suction and discharge piping or the bearings. Simply loosen 4 bolts . . . slip them out of disc slots . . . and pull off end cover. Four adjusting screws easily close worn clearances on suction side of impeller.
- 2 **GLAND UNDER SUCTION PRESSURE ONLY**—Since it is not subject to high stuffing box pressures, it is much less vulnerable to abrasive solids. Packing troubles are reduced to an absolute minimum . . . and there is considerably less dilution of your mixtures due to leakage.
- 3 **CORROSION-ABRASION RESISTANT**—The Morris Type R has no internal studs and bolts . . . no troublesome internal fits and joints. For ore processing, the alloy parts of the Type R stand up under the severe wear of corrosive and abrasive materials. These parts are easily renewed with minimum labor and time.
- 4 **SHELL IS INTERCHANGEABLE**—Suction and discharge nozzles can be swiveled around the axis of the pump to any of 72 different locations. Changed for either right or left hand rotation.

MORRIS TYPE "R" SLURRY PUMPS

For low-cost operation . . . low-cost maintenance . . .
longer hours of continuous service

IN CHEMICAL PROCESSING it handles mixtures containing ore concentrates . . . tailings, slag and residue from filters and classifiers . . . all types of caustic or acid mixtures containing abrasives or solids.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS Centrifugal Pumps

When inquiring check CP 5548 on handy form, pgs. 2-3



Eliminate
COSTLY MANUAL MARKING
with **ROLACODER**

**MARKS
CONTAINERS
IN MOTION
AUTOMATICALLY!**



Cut packaging payroll costs! Use ROLACODER to mark code-dates, lot numbers, colors, flavors, etc., on containers as part of your present sealing or conveying operation. Makes clean, SURE imprints containing up to 5 lines of copy on BAGS, BOXES, CARTONS, CASES, CANS, PAPER CONTAINERS, DRUMS, SHEET ROLLS.

Friction-operated, self-inking. Uses quickly interchangeable rubber type in patented base that permits combining different sizes and styles of type. Available with or without mark-centering mechanism.

Used by leading companies throughout the world!

Write for Data Sheet No. 6.0, describing ROLACODER models.



ADOLPH GOTTSCHO, INC.

MACHINES TO MARK WHATEVER YOU MAKE

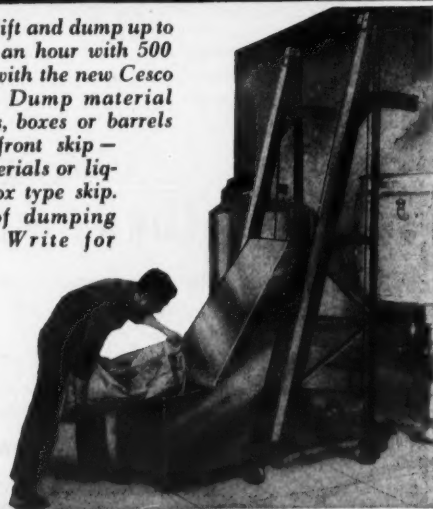
195 DUANE STREET, NEW YORK 13, N. Y.

See Our Catalog in Sweet's File for Process Industries.

When inquiring check CP 5549 on handy form, pgs. 2-3

CESCO DUMPER
**LIFTS and DUMPS UP TO
50,000 LBS. IN ONE HOUR**

You can lift and dump up to 100 trips an hour with 500 lb. loads with the new Cesco Dumper. Dump material from bags, boxes or barrels in open front skip — loose materials or liquids in box type skip. Choice of dumping heights. Write for catalog.



COLSON EQUIPMENT & SUPPLY CO.

1117 WILLOW STREET LOS ANGELES 11, CALIFORNIA

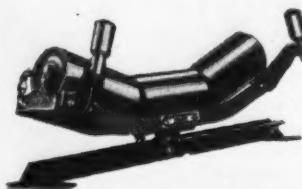
When inquiring check CP 5550 on handy form, pgs. 2-3

Page 20

Material Handling

Troughing Idlers Mount Without Cutting into Deck Plate

Types include flat, troughed, return belt; easily, safely lubricated; interchangeable



Troughing idler, showing easy-to-reach grease fittings

USES — Self-aligning idlers for conveyor belts. Designs are suitable for troughed, flat, return belts.

FEATURES — Troughing idlers easily mounted without cutting into deck plate; this feature is desirable when making replacements on existing installations. Idlers are interchangeable with most standard idlers. Safely, easily lubricated.

DESCRIPTION — Heavy-duty Timken bearings on 1 1/4" swivel shaft. All grease pipes extended to one side for ease and safety of lubrication. Hydraulic fittings are standard; others offered if specified.

SOURCE — This self-aligning belt conveyor idler is a design of the Continental Gin Company, Industrial Div., Dept. CP, Birmingham 2, Ala. . . or for more information check CP 5551 on handy form, pages 2 and 3.

Sound-proof, All-weather Cab Adapts Fork Truck to Outdoors

Fully-enclosed cab has upper window of glare-proof glass to aid in high stacking



Sound-proof, all-weather cab installed on fork truck

USES — Cab for use on manufacturer's "Yardlift-40" fork truck. Especially useful for protection during outdoor operation.

FEATURES — Sound-insulated, all-weather, fully-enclosed. Upper window of glareproof glass to aid in high stacking. Easily mountable for field installation.

DESCRIPTION — Entrance door on driver side. Equipped with sliding windows. Interior finished with

**BELT LACING
and FASTENERS**
for transmission
and
conveyor belts

"JUST A HAMMER TO APPLY IT"

ALLIGATOR

Trade Mark Reg. U. S. Pat. Office

STEEL BELT LACING

World famed in general service for strength and long life. A flexible steel-hinged joint, smooth on both sides. 12 sizes. Made in

steel, "Monel Metal" and non-magnetic alloys. Long lengths supplied if needed. Bulletin A-40 gives complete details.

FLEXCO HD

BELT FASTENERS AND RIP PLATES

For conveyor and elevator belts of all thicknesses, makes a tight butt joint of great strength and durability. Compresses belt ends between toothed cupped plates. Templates and FLEXCO Clips speed application. 6 sizes. Made in steel, "Monel Metal", non-

magnetic and abrasion resisting alloys.

By using Flexco HD Rip Plates, damaged conveyor belting can be returned to satisfactory service. The extra length gives a long grip on edges of rip or patch. Flexco Tools and Rip Plate Tool are used. For complete information ask for Bulletin F-100.

Sold by supply houses everywhere

**FLEXIBLE STEEL
LACING CO.**

4649 Lexington St.
Chicago 44, Ill.

"CONVEYOR BELTS EASILY FASTENED"

When inquiring check CP 5552 on handy form, pgs. 2-3

A Small Magnet
for a **BIG JOB!**

New Dings Alnico
Perma-Plate Magnet

For Removal of Tramp Iron

Lightest . . . Most Powerful . . . Least
Expensive Alnico Magnet Available!



Highest grade Alnico used for maximum power! Magnetic permanence guaranteed for life of installation! Non-electric . . . no operating or maintenance expense . . . simple to install . . . easy to clean. Removes tramp iron from all dry products. Simple, trouble-free design. Standard or special models to fit any system. Complete, ready for installation. Quick delivery. Patent Pending. Write for new bulletin.



In Chutes,
Ducts, Pipes
Over Belt Conveyors



Over Belt
Conveyors

DINGS MAGNETIC SEPARATOR CO.
4731 W. McGeagh Ave., Milwaukee 14, Wis.

Complete Line
of Permanent
and
Electro Magnets

Dings

"HIGH INTENSITY"

Since
1899

When inquiring check CP 5553 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Material Handling

sound-deadening material. Rearview mirror and windshield wiper are standard; hot water heater available as extra. Built for manufacturer by Allen Industrial Products.

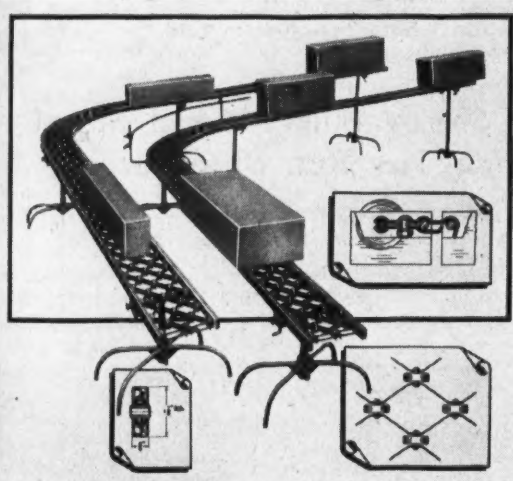
SOURCE — Cab is a product of the Clark Equipment Company, Tractor Division, Dept. CP, Battle Creek, Mich. . . or for more information check CP 5554 on handy form, pages 2 and 3.

All-Aluminum 10 Ft. Conveyor Sections Weigh Only 30 Lbs.

Non-sparking feature permits safe handling of hazardous materials; non-rusting properties advantageous in outdoor use

USES — For a wide range of services where portable conveyor units or systems are required to handle boxes, cartons, containers or other unit loads. Large or small units may be handled by reversing the sections, which places rollers above or below side rails.

FEATURES — Non-sparking construction — including aluminum wheels — makes these conveyors especially suitable for handling hazardous materials such as powder dynamite. Non-rusting characteristics make it suitable for outdoor use.



Wheels of aluminum conveyor supported on both sides by grid-like structure

DESCRIPTION — Except for hardened inner race-ways, the hardened steel balls and the hardened outer race-ways, the construction is 100% aluminum. Weight is thirty pounds for a ten foot length. This may be compared with a weight of fifty-eight pounds for an all-steel ten foot length. The aluminum type is made of slightly thicker material than the all-steel in order to provide equal strength.

Illustration shows details of construction, arrangement and design of wheels. Convenient, easily portable, and adjustable as to height.

SOURCE — The all-aluminum model of the standardized "Load-Veyor" is made by the Market Forge Company, Dept. CP, Everett 49, Mass. . . or for more information check CP 5555 on handy form, pages 2 and 3.

JUNE, 1948

A Warranty **fmc** *of Worth*

FOOD MACHINERY CORPORATION

This is the trademark of the Food Machinery Corporation. It is the emblem that identifies FMC's nationally-known manufacturing divisions. It is a mark of merit on thousands of FMC Division-made products. It is a symbol signifying FMC service behind these products.—And further, it is a warranty of worth to all who buy in the many diversified fields served by FMC,—a warranty that assures you of creative research, skilled engineering, quality manufacturing and sustained service for all FMC products. An illustrated booklet, "Know Your FMC's," fully describes the wide diversity of FMC products. Copies are available on request.

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NIAGARA CHEMICAL DIVISION
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Hoopeston, Illinois

Packing House & Processing Equipment

PACKING EQUIPMENT DIVISION
Riverside, California • Harlingen, Texas

FLORIDA DIVISION
Lakeland, Florida

FOOD MACHINERY CORPORATION
EXECUTIVE OFFICES: SAN JOSE 3, CALIFORNIA

When inquiring check CP 5556 on handy form, pgs. 2-3

➡ **Only Skylift ELECTRIC TRUCKS** **GIVE YOU High Pressure Hydraulic Lift**



Skylift takes load through low doorways, then tiers the product inside, with low ceilings no handicap. BELOW, you see the same Skylift tiering 130 inches high in high-ceiling warehouses... a dual operation made possible by high pressure hydraulic lift.



Automatic is First With Most Great Features

1 Caster type steering axle, center pivoted and shock-proof. Compensates for uneven floor conditions. Provides easier steering, prevents transmission of road shock to steering wheel.

2 Air-cooled disk brake. Mounted on end of motor where brake torque is least. This greatly prolongs life, gives greater braking surface, insures positive and smooth stopping.

3 Full automotive type controls. Brake pedal and foot accelerator same as a car. One lever controls lift and tilt, the other forward and reverse. NEW-matic controller gives smooth, timed automatic acceleration through all speeds.

4 Lift, tilt and drive simultaneously or independently with easy fingertip and foot control regardless of load conditions. The only hydraulic industrial truck that does not sacrifice lift or tilt performance to accomplish this feature, because only Skylift has High Pressure Hydraulic Lift and Tilt.



● Before you buy any industrial truck ask: "Has it high pressure or low pressure hydraulic lift?" You see, here is why it's so important to you.

Low pressure systems are fast becoming antiquated. High pressure hydraulic lift is a modern, up-to-date system—it is compact and efficient—and therefore, trucks so equipped can be much smaller in design to obtain better results.

There are other advantages, too. With Automatic's exclusive patented design, using high pressure hydraulics, you can raise forks to maximum height of single lift, before increasing overall height of uprights. Forks raise 67 inches before uprights begin to extend!

As you see by the pictures at the left, you get easy entry into box cars and other low clearance portals. You tier to maximum height without uprights jabbing into ceilings. The same Skylift also tiers up to 130 inches high, giving you a complete handling system for both LOW and HIGH CLEARANCE moving and tiering.

Only Automatic Skylifts offer you this double-duty money-saving feature, because ONLY Skylift Electric Trucks are equipped with HIGH PRESSURE Hydraulic Lift. No other industrial trucks have it, no others can offer it, because it is a PATENTED Automatic feature. Mail coupon.

➡ **Only Automatic GIVES YOU** **"BURN-OUT PROOF" Silicone Insulated Motors**

● Constant starting, stopping, reversing and overloading gives a motor an awful beating—often causes overheating, which means motor failure, trucks out of service.

Automatic foresaw the demands which would be put on Skylift Electric Trucks, so gave you the protection of SILICONE MOTOR INSULATION. This is an exclusive silicone varnish and silicone lubricant that protects Skylift motors, even if overloaded, and even after exposure to temperatures of 300 to 400 degrees Fahrenheit.

This means no armature or field coil failure, no trucks laid up for motor repair, no interruption of Skylift's smooth, efficient money-saving material handling operation. NO OTHER industrial trucks offer this EXCLUSIVE feature! Mail coupon.

AUTOMATIC TRANSPORTATION COMPANY

DIV. OF THE YALE AND TOWNE MFG. CO.

41 West 87th Street, Dept. H-8, Chicago 20, Illinois.

() Send details on Automatic's Skylift Electric Trucks and exclusive HIGH PRESSURE HYDRAULIC LIFT.

() Have an ATCO Specialist make a free survey of our material handling costs.

Company Name.....

By.....

Street Address.....

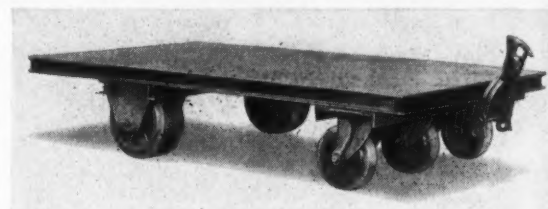
City.....Zone.....State.....

When inquiring check CP 5557 on handy form, pgs. 2-3

Material Handling

Industrial Trailer Handles 15,000-lb Loads

High capacity obtained by use of heavy duty casters for steering control, load wheels



Trailer with 54" x 96" platform and hook type coupler

USES — Ideally suited for handling heavy loads of machinery, dies, etc.

FEATURES — High load capacity obtained by use of three heavy duty casters for steering control, and two wide-faced load wheels.

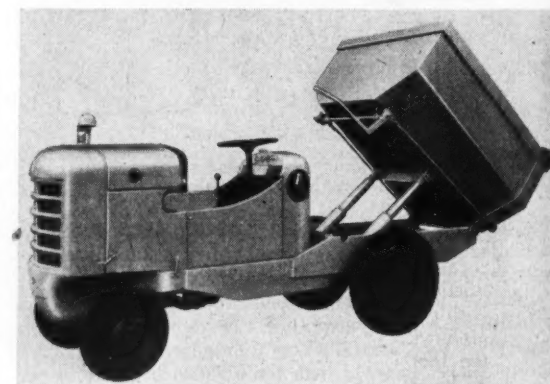
DESCRIPTION — 15,000-lb. capacity; all steel construction. All five wheels equipped with pressed-on solid rubber tires. Caster tires are 12 x 4" and load or rear wheels are 15 x 7". All wheels equipped with anti-friction bearings. Deck height is only 19". An assortment of coupling hitches and platform sizes is available.

SOURCE — The Mercury Manufacturing Company, Dept. CP, 4026 S. Halsted St., Chicago 9, Ill., . . . or for more information, check CP 5558 on handy form, pages 2-3.

Speedy Bulk Material Mover Has Rear-wheel Steer

2 cu. yd. 'Payload Buggy' maneuvers narrow aisles, doorways, low head-room areas

USES — Speedy "Payload Buggy" for moving bulk materials in and around plants and yards over longer hauls than are practical with tractor shovels or loaders.



2 cu. yd. "Payload Buggy"

Designed for operation on paved or unpaved surfaces, through narrow doorways and aisles, and in congested low head-room areas. For loading by Payloader Shovels, cranes, tractor shovels or by hand.

FEATURES — Provides low-cost, high-production movement of bulk materials. Dumps loads exactly where de-

CHEMICAL PROCESSING Preview

Material Handling

sired. Maneuverable and fast-moving. Parts are interchangeable with Model HA Payloader Shovel. Spacious, yet compact.

DESCRIPTION — A gasoline engine-powered, four-wheel pneumatic-tire hauling unit with 2 cu. yd. capacity, hydraulic-dumped back, and hydraulic brakes. Built low and compact with short wheelbase and rear-wheel steer. Over-all height, 5'8". Large, easy-rolling wheels and ground-gripping tires. Full visibility in all directions. Steel body. 2 forward, 2 reverse speeds.

SOURCE — Literature concerning this development is provided by manufacturer, The Frank G. Hough Company, Dept. CP, 802-L Sunnyside Ave., Libertyville, Ill. . . . or for more information check CP 5559 on handy form, pages 2 and 3.

Light-weight Truck Handles Kegs, Barrels, Other Containers

Easily attached, holds firmly while moving; choice of metal, rubber, pneumatic wheels

USES — Manual truck for handling of kegs, barrels or any wooden, round container.

FEATURES — Light-weight; can be picked up with one hand. Easily attached, holds tight while moving container.

DESCRIPTION — Weighs 22 lb. with metal wheels or 15 lb. with rubber tires. Constructed of heavy tubular steel, welded throughout. Equipped with metal, rubber or pneumatic wheels mounted on roller bearings. Overall standing height 45", width 16".

Truck is pushed against keg, handle pulled back, and it's ready for work. Sliding safety catch securely holds lip or open end of keg. Keg is firmly gripped at base by means of two heavy steel spikes.

SOURCE — Manufactured by the Palmer-Shile Company, Dept. CP, 16016 Fullerton Ave., Detroit 27, Mich. . . . or for more information check CP 5560 on handy form, pages 2 and 3.



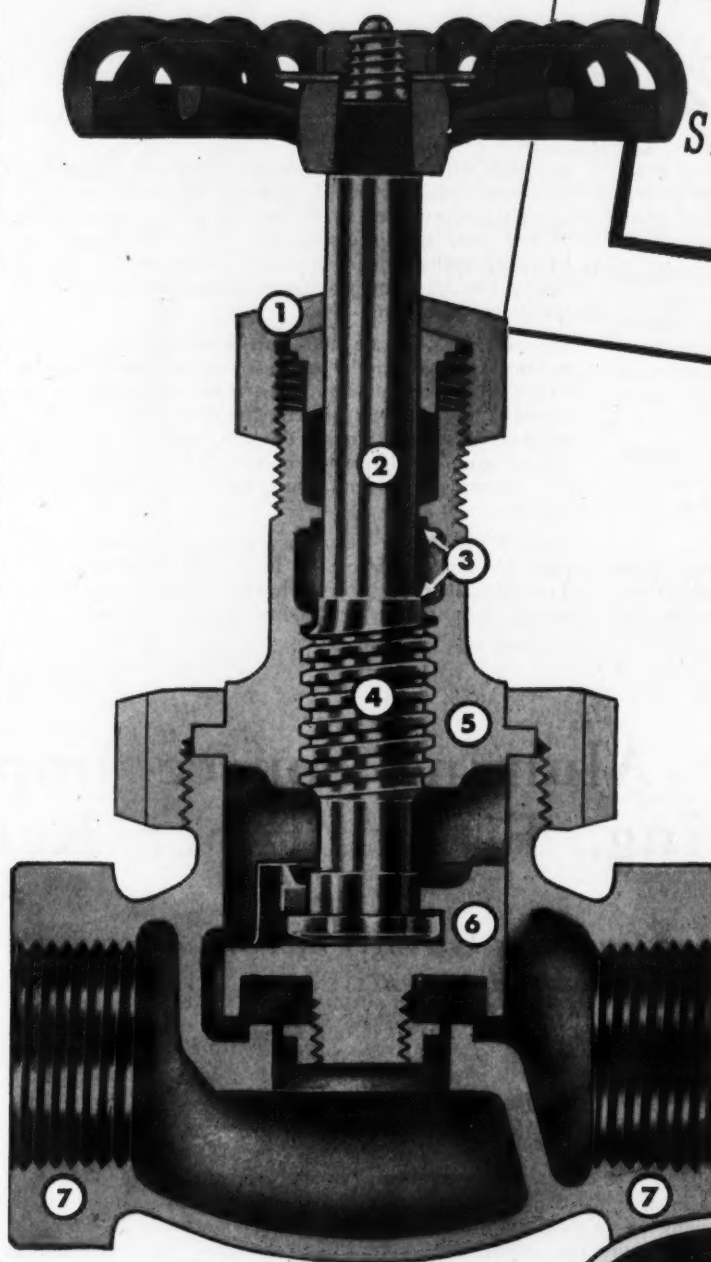
Keg being easily handled by truck

Various Types of Flexible Metal Slings Listed in Bulletin

Uses in pickling, annealing, conveying, etc. are suggested. Application photographs are shown. Various duplex weaves are illustrated. Bul. 90, issued by The Cambridge Wire Cloth Co., Dept. CP, Cambridge, Maryland. When inquiring, specify CP 5561 on handy form, pages 2 and 3.

JUNE, 1948

COST REDUCING extras...



OIC
SETS THE PACE
IN VALVES

- 1 The extra large packing nut will stand a man-sized wrench and has sufficient threads to utilize all packing in the stuffing box.
- 2 Heavy, wear-resisting manganese bronze stem means longer wear with less maintenance.
- 3 Back seating, providing special seat surface on stem above threads, permits quick, easy repacking under pressure.
- 4 Large thread contact area withstands extraordinary strain and maintains tight closure.
- 5 Sturdy bronze bonnet, union type construction, assures a tight bonnet joint and permits quicker and easier inspection and servicing.
- 6 Slip-on type disc holder is designed especially to permit quick, easy replacement.
- 7 Heavier, better construction throughout the distortion-proof body provides maximum resistance to operating stresses. Full area water ways throughout. Adequate stock for repeated re-seating.

NO MORE CHANGE-OVER TROUBLES WITH THE HANDY OIC CROSS REFERENCE CHART
Just check the number of the valve that you wish to replace, look in the OIC Cross Reference Chart, and you will find the number of the OIC Valve to replace it. For your free copy, write to The Ohio Injector Company, Wadsworth, Ohio.

OIC VALVES

STEEL • IRON • BRONZE

O-348-17

When inquiring check CP 5562 on handy form, pgs. 2-3

Emollients Allow Better Drug Release from Ointments; Do Not Interfere with Healing

Materials

USES — Function as emulsifiers, penetrants and emollients while acting as reservoirs and dispersing media for various drugs and anti-bacterial agents in pharmaceutical ointments.

Used as emulsifiers, stabilizers and emollients in creams and lotions of all types. Help solubilize the bromo acid dyes in lipsticks while increasing penetrating power. Act as stabilizers, conditioners and penetrants in cream shampoos, permanent wave solutions and emulsions, other products for hair. Also useful in skin-cleansing products, cold creams, shave creams, deodorants, etc.

Increase oil penetration in rayon-finishing emulsion baths; aid in dyeing; soften and improve finish on yarn. Employed in leather, emulsion ink, and other fields because of surface active properties.

FEATURES — Highly pure, odorless, tasteless, almost colorless. Tests indicate that material will not irritate skin. When used in ointments, tests have shown that

materials will not interfere with normal rate of healing. Emulsion ointments made, although of emollient water-in-oil types, are neither sticky nor greasy; this is due to fine state of dispersion and increased penetration. Viscosity, melting point and rate of drug release may be readily controlled by varying emulsion formula to meet specific requirements.

Promote better release and penetration of drugs in anhydrous pharmaceutical ointments such as penicillin ointments. Greasy ointments often cause setting-up of antagonism at oil/water interface which prevents contact with moist surfaces found on skin, mucous membranes and in wounds. Lowering of interfacial barriers allows free exchange between tissues and drug, manufacturer reports.

Marked increase in detergency with no irritation is reported. This is of interest in the skin-cleansing field. Tests indicate that materials have a "stabilizing influence on emulsion present in dermal tissue, and this action

tends to render the skin more or less impermeable to water".

Besides the surface-active properties which make it of value in other industrial applications, material is highly stable in presence of strong acids and alkalis.

DESCRIPTION — The "Amerchols" contain cholesterol, its isomers and related sterols of animal tissue origin. They are non-ionic. Manufactured from sterol-containing substances which are chemically split into their components. Thus, there is little variation in the biological material.

The Amerchol group specifically includes cholesterol, agnosterol, lanosterol, 7-dehydrocholesterol, dihydrocholesterol, ceryl alcohol and melissyl alcohol.

SOURCE — The Amerchols are products of American Cholesterol Products, Inc., Dept. CP, Milltown, N. J. . . . or for more information check CP 5563 on handy form, pages 2 and 3.

Act as emulsifiers, penetrants in cosmetics, industry; do not irritate skin; pure, odorless, tasteless

Alkaline Alumina Source Improves Paper Sizing, Filler, Fiber Retention

Higher pH yields paper of lower acidity, longer life; useful in water-treatment and detergents

USES — In paper industry as a sizing adjunct, as an aid in retention of filler and fiber and in control of pH of stock. Recent development is use, in combination with certain starches, for removal of filler and fiber from white water.

In boiler feed water treatment, both external and internal, where it has combined effects of both a softening and coagulating agent. Reacts with calcium and magnesium salts in water and converts them into insoluble, flocculent non-scaling compounds, it is said.

When used with aluminum sulfate, material can be used effectively by municipal waterworks for flocculation and removal of suspended impurities from raw water. A highly absorptive floc is formed which readily settles to yield a clear, colorless water.

Suggested uses include ingredient of detergents and bottle-washing compounds.

FEATURES — Use of material, sodium phospho alu-

minate, in conjunction with alum in paper mill beater permits introduction of any quantity of alumina into paper stock without acidity that would have been present if all alumina had been added as aluminum sulfate.

Also, only one-fourth of the sodium sulfate is formed than would be true in the latter case. Build-up of sodium sulfate in white water is detrimental especially in paper mills using closed systems. Excessive sulfate is also undesirable when certain resins are used in manufacture of wet-strength paper.

Sodium phospho aluminate is reported not to hydrolyze as readily as sodium aluminate; 2-3% solution remains stable for many hours. When hydrolysis finally does set in, both aluminum hydroxide and aluminum phosphate come down as fluffy particles which do not coat walls of container or plug lines.

The higher pH at headbox yields paper of lower acidity and longer life, it is stated, and higher stock pH alleviates corrosion of wire and equipment. Increased re-

tention of filler and fiber, more uniform and better sizing are reported.

DESCRIPTION — Sodium phospho aluminate is a white, water-soluble powder which is principally a double salt of sodium aluminate and sodium orthophosphate, containing approximately 70% sodium aluminate and 20% sodium orthophosphate. Typical analysis follows:

Water insoluble	0.1%
Na ₂ O	44.5%
Al ₂ O ₃	43.5%
P ₂ O ₅	8.5%
SiO ₂	1.5%
CO ₂	1.5%
Undetermined	0.4%

Alkaline source of alumina. Reaction between material and aluminum sulfate induces co-precipitation of aluminum hydroxide and aluminum phosphate. Thus, any amount of these end-products can be introduced over wide range of alkalinity or acidity. Packaged in 100-lb. laminated paper bags.

SOURCE — This product is a development of the American Cyanamid Company, Heavy Chemicals Dept., Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 5564 on handy form, pages 2 and 3.

High-Solid-Content Coatings Make Fewer Coats Necessary

Vinyl-base dispersions produce highly protective film; flame-resistant, flexible

USES — Coatings where resistance to alkalis, alcohol, acids, vegetable oils is desired. May be applied over practically any backing now being used as backing on nitrocellulose films, such as cotton sheeting, scrim, flannel and sateens. Applied over rubber or latex impregnated fabric with or without binder coat. Provides grease and moisture-resistant coating to such wrappings and protective coverings as fabrics, paper or metal foil.

FEATURES — Coating dispersions are much higher in solids content, hence less number of coating layers is necessary and solvent saving is effected. Besides, materials coated are flame-resistant, have improved wear and scuff properties, superior weathering qualities, longer flexing life, excellent low-temperature flexibility and much lower water absorption and moisture vapor permeability.

DESCRIPTION — The "Ultrasols" are dispersions of polyvinyl chloride in plasticizer and solvent-diluent mixtures. They are supplied in either pigmented ready-to-use products or in clear base solutions. In the process of dispersing the resin, the particles are swollen by solvation with the plasticizer and solvents to produce a consistency similar to mayonnaise, rather than the high-shear viscosity characteristics of a nitrocellulose solution. The unpigmented dispersions are translucent white.

Fluid properties of a typical clear base Ultrasol are: Viscosity — 23 to 28 McMichael, No. 20 wire, approx. 2600 centipoise; Solids content — 65.0%; Weight/gallons — 8.8 lb. Storage temperatures should never exceed 110° F.; sol will thicken, due to increased solvent activity upsetting careful balance of solvent power, and in time a gel will form.

The film is weak and soft when dried but permits handling. Brief treatment at temperatures above 350°-400° F will fuse the film to a tough coating.

Fabrics treated remain flexible at temperatures below 20° F and withstand even sub-zero temperatures without cracking or crazing.

Further information on these coatings can be found in manufacturer's technical bulletin M-98.

SOURCE — "Ultrasols" are a product of the Surface Coatings Dept., Merrimac Div., Monsanto Chemical Co., Dept. CP, Boston 49, Mass. . . or more information check CP 5565 on handy form, pages 2 and 3.

★

Bulletin Lists Line of Synthetic Organic Chemicals Derived from Coal Chemicals

General bulletin presents data on products of manufacturer. Products are, in general, synthetic organic chemicals derived from coal chemicals. Properties, reactions and general uses are pointed out in a brief, general way. Some chemicals now available on commercial scale are: dihydroxydiphenyl sulfone, di-tert-butyl-meta-cresol, mono-tert-butyl-meta-cresol. Also, hydrogen cyanide (industrial grade), beta-methyl umbelliferone, beta-resorcinic acid.

Bulletin C-7-103, issued by Chemical Division, Koppers Company, Inc., Dept. CP, Pittsburgh 19, Pa. When inquiring specify CP 5566 on handy form, pages 2 and 3.

JUNE, 1948

Types of Reactions you can carry out with Sulfuryl Chloride

1. Chlorination of aromatic compounds
2. Chlorination of aliphatic compounds
3. Sulfonation of aliphatic compounds
4. Sulfonation of aromatic compounds
5. Acylation (preparation of esters, acid chlorides, anhydrides, etc.)

Chlorination

Sulfuryl Chloride offers certain advantages as a chlorinating agent that are quite universally recognized. They are principally:

1. The heat of chlorination is far less than that using elementary chlorine.
2. It is possible by using different catalysts, reacting at different temperatures and by carefully controlling proportions of reactants, to chlorinate selectively.

Sulfonation

The availability of sulfur in the compound makes it equally valuable in the sulfonation of aromatics and aliphatics. Sulfonyl chloride derivatives may be obtained by the addition of small quantities of aluminum chloride to a cooled reaction mixture of sulfuryl chloride and aromatic hydrocarbons.

Formation of alkyl sulfonyl chlorides with yields as high as 70% are reported in the sulfonation of paraffin hydrocarbons in the presence of light and a catalyst.

Acylation

Alkyl chlorosulfonates are the products of reactions of sulfuryl chloride with many aliphatic alcohols. A number of interesting acylated products may be produced through the reaction of this versatile chemical with aliphatic and aromatic amines.

* * *

You who are interested in the synthesis of organic chemicals will find Sulfuryl Chloride a valuable reagent. With Hooker Sulfuryl Chloride you will be working with a particularly pure product that tends to increase yield and eliminate side reactions.

For more information on Sulfuryl Chloride as a chlorinating agent write on your letterhead for Bulletin 328A. It also includes data on other Hooker chlorinating agents. For information concerning other reactions of Sulfuryl Chloride send for Bulletin 330, a reprint of an article on "Sulfuryl Chloride in Organic Chemistry." Technical Data Sheet 717 contains typical properties and specifications of Hooker Sulfuryl Chloride.

7-358

HOOKER ELECTROCHEMICAL COMPANY

15 Forty-Seventh St., Niagara Falls, N. Y.
New York, N. Y. Wilmington, Calif. Tacoma, Wash.

HOOKER CHEMICALS

Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorobenzene Chlorine Sodium Sulfhydrate

When inquiring check CP 5567 on handy form, pgs. 2-3

LOOKING FOR WAYS TO

Better Products?

LOOK TO
METHOXY POLYETHYLENE GLYCOLS
 $\text{CH}_3\text{OCH}_2(\text{CH}_2\text{OCH}_2)_x\text{CH}_2\text{OH}$
NOW AVAILABLE

Three methoxy polyethylene glycols with average molecular weights of 350, 550, and 750 can be supplied in commercial quantities. The 350 compound is a viscous liquid. The 550 and 750 materials are soft, wax-like solids.

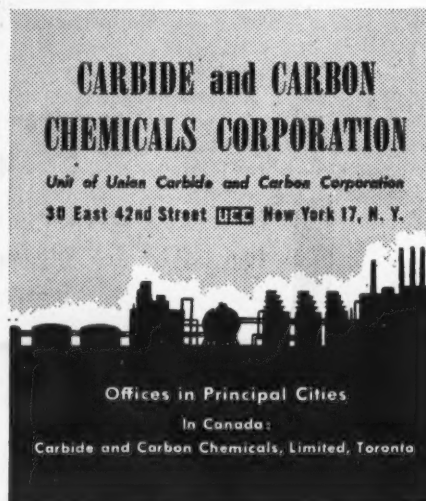
METHOXY POLYETHYLENE GLYCOLS may be your answer if you are seeking ways to new or better products. This unique group of compounds, though still new, is being used by many manufacturers in the fields of textiles, metal lubricants, and intermediates.

The methoxy polyethylene glycols are completely water-soluble and have good solvent properties. These higher glycol-ethers can be reacted with fatty acids to form *mono-esters*—which are specially efficient as wetting agents (0.1 per cent of the 550 laurate derivative sinks cotton in 15 seconds by the Draves test). The fatty acid esters are also excellent emulsifying agents, detergents, and dispersants which are not affected by mild acids, alkalis, or hard water.

Methoxy polyethylene glycols should be investigated as plasticizers for casein, starch, and other adhesive compositions—where hygroscopicity and low evaporation rates are advantageous.

Uses and properties of other water-soluble materials from Carbide are covered in the booklet, "CARBOWAX Compounds and Polyethylene Glycols". For your copy please address Dept. S-6.

"Carbowax" is a registered trade-mark of C&CCC.



CARBIDE and CARBON
CHEMICALS CORPORATION
Unit of Union Carbide and Carbon Corporation
30 East 42nd Street **UCC** New York 17, N. Y.

Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

When inquiring check CP 5568 on handy form, pgs. 2-3

Materials

Water Resistant Strip Coating

Protects metal parts while in transit or storage; cold or hot application

USES — Provides an envelope type protective coating for use over bare metals and finished products to protect them from rust, corrosion, marring and scratching. Water resistant property protects machined parts while in transit or storage.

FEATURES — Available for hot or cold application. Can be removed from the article simply by piercing surface and stripping.

DESCRIPTION — This plastic strippable coating is known as Copeel. It has been tested under actual service conditions.

SOURCE — Maas & Waldstein Co., Dept. CP, 438 Riverside Ave., Newark 4, N. J., . . . or for more information check CP 5569 on the handy form, pages 2 and 3.

★

Inhibits Foam in Chemical, Adhesive, Rubber Manufacture

Economical, inert, non-volatile agent also used in paint, paper industries

USES — Prevents and suppresses foaming in aqueous solutions. Suppresses foaming in laboratory distillation and analytical procedures, vacuum concentration or steam distillation in the chemical processing industries, processing of tars and asphalts, vacuum distillation of latex emulsions such as Neoprene and GR-S, and during steam distillation of emulsions of other butadiene-styrene copolymers. Breaks air bubbles in dip coating of rubberized products.

Good foam suppressor during condensation reactions involving the elimination of water in the paint and varnish industry. Prevents foaming during application of certain emulsion type paints. Suppresses foaming in manufacture and application of many adhesives. Kills foams formed during manufacture of various gums and synthetic waxes. Useful in formulating wax emulsions.

Prevents foaming during evaporation of black liquor in paper industry, and controls foaming of aqueous rosin soap. Suppresses foaming of aqueous sodium oleate and sodium alkyl sulfate.

FEATURES — Very efficient and economical. Since it is chemically inert, non-volatile and effective in low concentrations, there is less chance of contaminating product. Completely insoluble in aqueous phase of colloidal systems. Practically harmless if taken internally; causes no apparent irritation to skin.

DESCRIPTION — "Antifoam A" is colorless, translucent silicone compound. Retains honey-like consistency at temperatures from minus 40° C to over 200° C. Retains effectiveness in steam distillation or vacuum evaporation. Lighter than water. Besides water, it is insoluble in lower alcohols, glycols and glycerine. Dispersible in many organic solvents, including coal tar solvents, petroleum naphthas, chlorinated hydrocarbons, pine oil, oleic acid and dioxane. Tasteless, has very slight, but not unpleasant, odor.

Methods of use vary. In some cases, material is added

CHEMICAL PROCESSING Preview

Materials

directly just before foaming starts. In other cases, small quantities may be added during foaming until foam is suppressed. It is often desirable to add "Anitfoam A" dispersed in one of the organic solvents listed. Dispersions of this kind ranging from 10% or less to 50% can be easily prepared.

Some users may prefer to add a mixture of material diluted with one of the ingredients of the foaming material; cases are known where such mixtures are made up in pellet or capsule form.

Range of concentration required to prevent or suppress foaming of most aqueous solutions is 20 to 200 parts of "Antifoam A" per million. In some cases, less than 1 part per million is required; in others, up to 5,000 parts per million have been used.

SOURCE — Dow Corning Corp., Dept. CP, Midland, Michigan . . . or for more information check CP 5570 on handy form, pages 2 and 3.

Bonded Filter Cloth Possesses High Wet Strength; Non-Soluble

Has high flow rates; pure and nontoxic, lint-free and ravel-proof

USES — For filtering gelatinous products, light oils, liquors. Successfully used on plate and frame filter presses at present.

FEATURES — High wet strength, unusually high flow rate, supports standard filter aids such as diatomaceous earth, re-usable when washed, chemically pure and nontoxic. Will not dissolve in common organic solvents; lint-free, porous yet absorbent, will not ravel. Used safely a large number of times before replacement, tests show.

DESCRIPTION — Nonwoven cotton or rayon cloth strongly bonded with an insoluble agent. Construction imparts unusual qualities to fabric.

SOURCE — The Visking Corp., Dept. CP, 6733 W. 65th St., Chicago 38, Ill., . . . or for more information, check CP 5571 on handy form, pages 2 and 3.

Makes Aldehydes, Alcohols from Olefins by Addition of Carbon Monoxide and Hydrogen

Descriptions of "Oxo" process alcohol plant, and "Oxo" process propionaldehyde plants are given in 78-page report. Details on scope of process, and engineering data on aldehyde plant are presented. Technical information on individual processes include operating information on the Leuna continuous slurry process, and Ludwigshafen fixed bed process. Mechanism of Oxo reaction and primary product analyses are shown. Uses of Oxo products include olefin feed for detergent production, detergent alcohols, sulfate powder, soap.

Test results are presented which indicate that Oxo alcohol sulfates are as effective detergents as Lorol alcohol products. Illustrations and flow sheets supplement the text. Bibliography is presented.

Report PB-81383 sells for \$2 per copy. Remit directly to the Office of Technical Services, Dept. of Commerce, Washington 25, D. C. Remittance payable to the Treasurer of the United States.

JUNE, 1948

Why

HAUL SALT



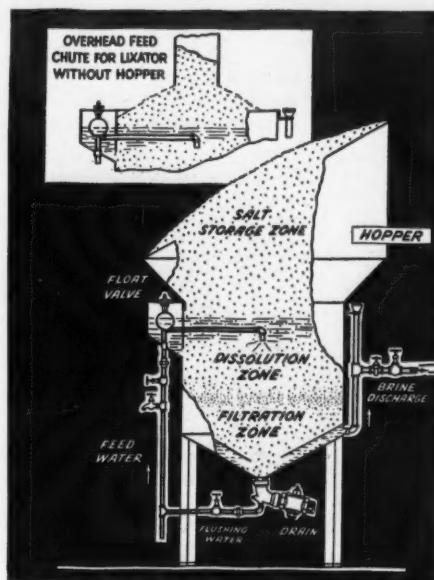
MEASURE SALT



STIR SALT?



just Turn it on!



HOW THE LIXATOR WORKS

In the dissolution zone — Flowing through a bed of Sterling Rock Salt which is continuously replenished by gravity feed, water dissolves salt to form 100% saturated brine. In the filtration zone — Through use of the self-filtration principle originated by International, the saturated brine is thoroughly filtered through a bed of undissolved rock salt. The rock salt itself filters the brine. Nothing else is needed.

WHAT THE LIXATOR PROVIDES

- ✓ Chemical and bacterial purity to meet the most exacting standards for brine.
- ✓ Unvarying salt content of 2.65 pounds per gallon of brine
- ✓ Crystal-clear brine
- ✓ Continuous supply of brine
- ✓ Automatic salt and water feed to Lixator
- ✓ Inexpensive, rapid distribution of brine to points of use by pumps and piping



The full story on how to save man-hours and money in handling salt is told in our free 36-page booklet "The Lixate Process for Making Brine." Send for it today. Simply fill out the coupon and mail to:

INTERNATIONAL SALT CO., INC., Dept. CP-6, Scranton, Pa.

Name _____
Firm _____
Street _____
City _____ State _____

The **LIXATE** *Process*
for making brine

INTERNATIONAL SALT COMPANY, INC.
Scranton, Pa.

When inquiring check CP 5572 on handy form, pgs. 2-3

B. F. Goodrich Chemical Company

has for sale these GOOD-RITE chemicals



In Commercial Quantities

Phenyl B Naphthyl Amine • Distilled • Commercial

Mixed Mono-and Diheptyl Diphenyl Amines

Isopropoxy Diphenyl Amine

p Hydroxy Diphenyl Amine

N-Nitroso Diphenyl Amine

Diphenyl p Phenylene Diamine

Di B Naphthyl p Phenylene Diamine

Monobenzyl Ether of Hydroquinone

Di Isopropyl Dixanthogen

Mixed Ethyl and Dimethyl Mercaptothiazoles

Polymerized Trimethyl Dihydro Quinoline



In Pilot Plant Quantities

Dibenzyl Ether of Hydroquinone



For additional information please write

B. F. Goodrich Chemical Company A DIVISION OF
Department CG-5, Rose Building, Cleveland 15, Ohio

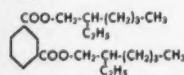
When inquiring check CP 5573 on handy form, pgs. 2-3

MORE NEW RARE CHEMICALS

from Genesee Research Laboratories



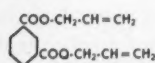
Bromo-tere-phthalic acid



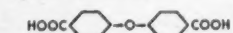
Di(2-ethyl hexyl)-iso-phthalate



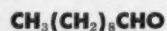
Di-n-butyl-iso-phthalate



Diallyl-iso-phthalate



4,4'Dicarboxy diphenyl ether



n-Decyl Aldehyde

45 OTHER RARE ORGANIC CHEMICALS

Send for Products List
Inquiries for other rare organics invited



GENESEE RESEARCH
CORPORATION
571 Lyell Avenue
Rochester 8, New York

When inquiring check CP 5574 on handy form, pgs. 2-3

Materials

Plastic Film Tape Protects Pipe Against Acid, Seals Rubber Tubes

*Many applications involving corrosive fumes,
aliphatic hydrocarbons, oil*

USES — To protect metal pipes, fittings and equipment against corrosive fumes and acids, to seal rubber tubings and desiccators, and for temporary repairs.

FEATURES — Excellent resistance to acids, alkalis, water, salt water, alcohol, aliphatic hydrocarbons, and oils.

DESCRIPTION — The tape is available in yellow, black and white films. The yellow tape has additional resistance to enable it to meet the requirements of the electroplating industry.

It comes in 36 yard lengths, with widths from a



Tape winds snugly on pipe

quarter-inch to 22 inches. Thickness is seven mils. Elongation at break is 175 per cent, with stretch in transverse direction slightly higher.

The tape has fair resistance to aromatic hydrocarbons and is soluble in ketones and certain esters.

SOURCE — "Scotch" Plastic Film tape is a product of Minnesota Mining & Manufacturing Co., Dept. CP, St. Paul, Minn., . . . or for more information check CP 5575 on handy form, pages 2 and 3.



"Newer Methods of Preparative Organic Chemistry" Is Translated from German

Translated and revised from the German, "Newer Methods of Preparative Organic Chemistry" is a 658-page volume based on a series of articles published in "Die Chemie." Revised and partly brought up to date, they include 14 articles concerning selected methods of organic synthesis. Literature describes and tabulates application of these methods for many preparations. Index lists approximately 3,000 compounds.

Typical subjects include diene synthesis, organic fluorine compounds, reductions with Raney nickel catalysts, and oxidations with lead tetra-acetate and periodic acid. Price \$8.50. Remit direct to Interscience Publishers, Inc., Dept. CP, 215 Fourth Ave., New York 3, N. Y. Or, when inquiring, specify CP 5576 on handy form, pages 2 and 3.

Chemical Iron

Here's a quality product of uniform purity and consistency. This Iron Powder, ground especially for the chemical trade, is available in all grades and meshes. Manufactured by a company in business for over 73 years. Write for free samples.

CONNELLY Inc.

3154 S. California Ave., Chicago 8, Illinois
Elizabeth, N. J. • Los Angeles, California

When inquiring check CP 5577 on handy form, pgs. 2-3

FOR BETTER
PRODUCTS AT
LOWER COST
USE...

SILVACON

SILVACON is the name for individual raw materials—cork particles, lignified fibers, amorphous powder—separated from tree bark for industrial uses by new Weyerhaeuser Timber Company processes.

INDUSTRY is using **SILVACON** in a variety of products—as an extender for adhesives—as an extender in thermosetting molding compounds, in rubber compounds, magnesite flooring, etc. Users report lower raw material costs, while maintaining quality.

SILVACON is dry, free-flowing, plentiful and uniform, whether the fractions are used singly or in combination.

YOUR FORESIGHT now in considering **SILVACON** for use in your products may be a rewarding decision.

Write for Literature and FREE SAMPLES

Ask for our folder detailing physical and chemical properties of five **SILVACON** fractions. It lists proved and experimental uses to help you in your own product development work. We'll send free samples on request. Our development engineers and field representatives will furnish technical assistance. Write Weyerhaeuser Timber Company, **SILVACON** Department, Longview, Wash.



A PRODUCT OF Weyerhaeuser DEVELOPMENT
SILVACON
BUILDING AMERICA'S FORESTS FOR AMERICA'S FUTURE

When inquiring check CP 5578 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Materials

Thermoplastic Easily Forms Odd Shapes

*Has low water absorption,
heat conduction*

USES — Thermoplastic material for fabrication of new type shipping container for dry and frozen foods, luggage, radio cases, and component parts for boats, automobiles, buses, airplanes, trains. Used in home freezers, commercial freezers, other products.

FEATURES — Tough, lightweight, easily formed into irregular and compound shapes without expensive tooling. Eliminates expensive finishing operations. High impact strength, low water absorption, excellent insulating properties and low rate of heat conductivity. Will not chip or warp and is highly resistant to gasoline, oils and most commercial cleaners.

DESCRIPTION — Can be formed into shapes as large as 5' x 10', in thicknesses above 0.020". Can have solid color throughout, with dull, satin, gloss or embossed finish.

Company controls making of material from base resin to finished form product, manufacturing resin, compounding and fabricating. Methods of bonding material to itself or other materials in production have been developed. Cutting, drilling and punching can be done on ordinary wood or metal-working equipment.

SOURCE — Versalite is a development of the United States Rubber Co., Dept. CP, Rockefeller Plaza, New York, N. Y. . . or for more information check CP 5579 on handy form, pages 2 and 3.

★

Repairs or Resurfaces Plant Floors in 18 hrs.

How to repair or resurface plant floors to smooth surface conditions in 18 hours with "Trowel-In" is revealed in a 4-page leaflet. Unit consists of compound, primer and dryer, applied by any maintenance man.

Issued by Flexrock Company, Dept. CP, Filbert & Cuthbert, West of 36th St., Philadelphia 4, Pa. When inquiring specify CP 5580 on handy form, pages 2 and 3.

For more information on product advertised at right, specify CP 5581 . . . see information request blank between pages 2-3.

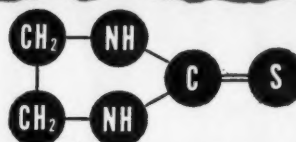
DOUBLE CHECKED ✓ FROM RESEARCH TO INDUSTRY



SHARPLES THIOUREAS

AVAILABLE IN COMMERCIAL QUANTITIES

ETHYLENE THIOUREA (2-IMIDAZOLIDINETHIONE)



Ethylene Thiourea forms complexes with many metallic salts. Most of the reactions of Ethylene Thiourea involve its tautomeric isothiurea form. It may also be acylated with acid chlorides, and methylol derivatives are obtained by its reaction with formaldehyde.

SUGGESTED USES:

Intermediate for Organic Synthesis
Anti-Oxidant

PROPERTIES:

Appearance.....Fine white to pale green crystals.
Odor Slight.
Ethylene Thiourea content..... Min. 97.5%
Volatiles.....Max. 0.3%
Melting Point.....Min. 191°C.

DIALKYLTHIOUREAS

1,3-Diethylthiourea
1,3-Diisopropylthiourea
1,3-Dibutylthiourea

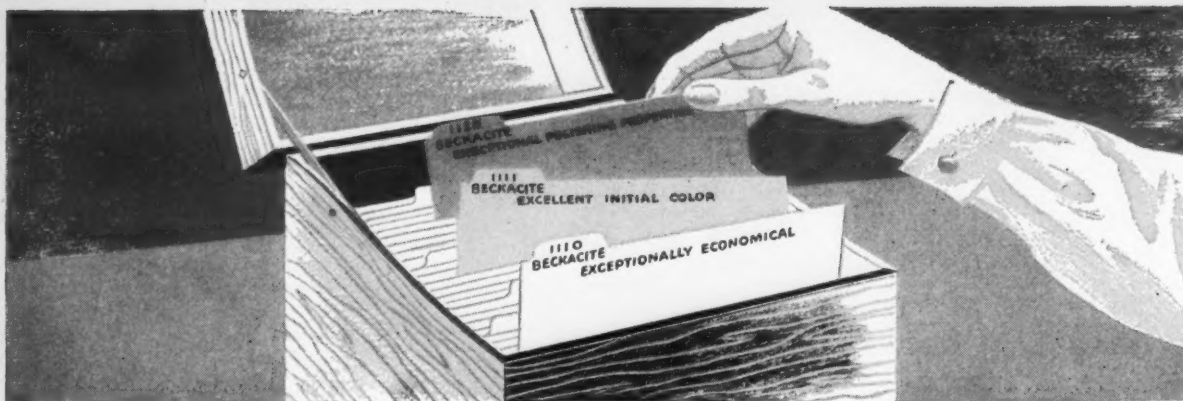
SUGGESTED USES:

CORROSION INHIBITORS
PICKLING INHIBITORS

These materials have found application as components of dry pickling and cleaning compositions containing acidic materials, such as sodium acid sulfate.

SHARPLES CHEMICALS Inc. PHILADELPHIA • CHICAGO • NEW YORK

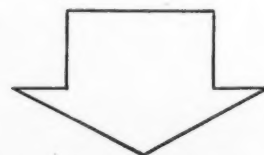




The logical choices
for quality
lacquers, varnishes, white enamels

NO. 1110
NO. 1111
NO. 1120

BECKACITES



These quality maleic resins are created by the industry's leading staff of resin formulators—and show it in every way. No. 1110 is the choice for medium-priced finishes because of its low cost and outstanding solubility, initial color and color retention. No. 1111—notable for fast solvent release—is recom-

mended for high-grade pale lacquers, varnishes and white enamels. No. 1120 imparts exceptional film hardness, making it especially fine for rubbing and polishing finishes. For detailed properties and formulating suggestions, write direct to the Sales Department at Detroit.

REICHOLD CHEMICALS, INC.

General Offices and Main Plant, Detroit 20, Michigan



Other Plants: Brooklyn, New York • Elisabeth, New Jersey • South San Francisco, California • Seattle, Washington • Tuscaloosa, Alabama
Liverpool, England • Paris, France • Sydney, Australia • Zurich, Switzerland • Milan, Italy • Buenos Aires, Argentina

SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • INDUSTRIAL CHEMICALS

When inquiring check CP 5583 on handy form, pgs. 2-3

Materials

Vinyl Coating Brushed or Sprayed Dries to Thicker Film

Does not support bacteria, fungi; resists dilute acids and is waterproof

USES — Easily applied to concrete, masonry, wood surfaces where resistance to dilute acids, alkaline cleaning compounds employed as detergents, and animal and vegetable oils, is necessary.

FEATURES — Solids content of conventional vinyl coatings has necessitated application of multiple coats to obtain adequate film thickness. The high solids content of this coating produces a thicker film with fewer coats to give greater coverage and better sealing action.

DESCRIPTION — Amercoat number 88 is a pigmented vinyl resin dispersed in water. Applied with brush or spray gun. Dries quickly without baking.

SOURCE — American Pipe & Construction Co. (Amercoat Div.), Dept. CP, Box 3428 Terminal Annex, Los Angeles 54, Cal. . . . or for more information check CP 5584 on the handy form, pages 2 and 3.

2,4-D Amine Salt Weed Killer

Used in either concentrated or dilute sprays

DESCRIPTION—A new form of weed killer, an amine salt of 2,4-D can be used on growing crops as a liquid in either dilute or highly concentrated sprays. An older sodium salt formulation, also made by this same organization, is also used primarily on growing crops. It is especially adapted for use in medium to high gallonage applications.

This company now offers the sodium salt, the amine salt, and also a liquid ester 2,4-D formulation. Each permits specific weed control with utmost economies.

2,4-D is a plant growth regulating material that causes weeds to die by exhausting their normal food reserves. The material is taken up by many plant leaves and carried (translocated) to underground parts to give complete kill. 2,4-D is a selective weed killer. When used as directed it kills some types of weeds without noticeable effect on the crops in which they grow.

In all of its three forms referred to here it is non poisonous, non-flammable, non-corrosive and safe to use. Animals grazing over sprayed areas have not been affected by it in any way. 2,4-D does not have a sterilizing effect on the soil when applied as recommended. The three weed killers discussed here may be described as follows:

2,4-D weed killer is a white crystalline powder containing 83.5% sodium salt of 2,4-D — equivalent to 75.9% 2,4-D acid. (1 lb. of Du Pont 2,4-D weed killer yields 3/4 lb. 2,4-D acid) The active ingredient is a true chemical compound, not a physical mixture. It is soluble in water, even water of the hard types. Since it dissolves readily and completely, it leaves no materials in the tank to clog spray nozzles.

The 67% amine weed killer is preferred to make highly concentrated aqueous solutions. This newer form is a concentrated liquid salt. It contains 67% mixed ethanol amines of 2,4-D (equivalent to 40% 2,4-D acid). One gallon contains 4 1/8 lbs. 2,4-D acid. It is extremely soluble in water. This form is especially suitable for

Materials

low gallonage applications. (10 gallons acre). It can, however, be used with more with equal effectiveness.

The 45% ester weed killer is an oily, liquid 2,4-D containing 46% isopropyl ester of 2,4-D. It is equivalent to 38.6% 2,4-D acid or 3-1/3 lbs. per gallon. It can be mixed with either oil or water for use on weeds.

Generally, the ester form of 2,4-D is more effective on small grains and similar crops when used for selective control of weeds in the growing crop. For this purpose the salt forms are preferred. The amine salt, however, is more effective for weed control in conditions involving harder-to-kill herbaceous plants, in dry weather, and under conditions where salts are subject to washing off.

Where 2,4-D is to be used in oil for weed control, the ester weed killer should be used at the same concentration.

SOURCE — E. I. Du Pont de Nemours & Co., Dept. CP, Wilmington 98, Del. . . . or for more information check CP 5585 on handy form, pages 2 and 3.

Plastic Finish Passes One Year Outside Weatherometer

Maintains high gloss-retention with no color attack; easily applied

USES — Can be used for protection of weathered metallic, painted-wood and other surfaces. It is especially where high gloss is desired.

FEATURES — Manufacturer states that plastic film tested only weatherometer-tested plastic film that has been approved as passing a one-year outdoor weather test without chipping, blistering, peeling, flaking, checking or scaling. Perfect retention of gloss during this period is reported. Can be easily wiped to a mirror-like finish.

DESCRIPTION — This plastic finish has been developed and approved by United States Testing Corporation. Simply wiped on; flows out and dries to a smooth finish. One coat is usually adequate. Mirofilm is producer of brushless auto enamel.

SOURCE — "Mirofilm" is a product of Mirofilm Corp., Dept. CP, 2214 Dolman St., St. Louis 8, Mo. or for more information check CP 5586 on the handy form, pages 2 and 3.

Properties, Reactions, Applications, Toxicity of Nitriles Shown in Bulletin

"Cyanamid's Nitrogen Chemicals Digest — The Nitriles", 19 page booklet, lists physical and chemical properties, reactions, applications and toxicity of many nitriles. Data on acrylonitrile, glycolonitrile, acrylonitrile, acetone cyanohydrin are included. Also included are cyanohydrin, isopropoxypropionitrile, chloroacetonitrile, succinonitrile. Bibliography contains references.

Issued by the American Cyanamid Co., Synthetic Organic Chemicals Dept., Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. When inquiring, specify on handy form, pages 2 and 3.

CHEMICAL PROCESSING Preview

JUNE, 1948

(10 gallons or less per
with more dilute sprays

an oily, liquid form of
l ester of 2,4-D equiva-
1/3 lbs. per gallon. It
water for application to

4-D is more injurious to
when used for the selec-
growing crop. For this
ferred. The ester form,
weed control under con-
herbaceous and woody
er conditions where the

1 for weed control, 46%
ed at the recommended

Nemours & Co. (Inc.),
... or for more infor-
mation, pages 2 and 3.

uses One-Year
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surfaces. Also for use

ates that product is the
tic film that has been
outdoor weatherometer
peeling, flaking, chalk-
retention of gloss for
easily wiped on to give

finish has been tested
Testing Company, Inc.
and dries evenly and
adequate. Manufacturer
amel.

product of the Wype
St., St. Louis, Mo. . . .
CP 5586 on handy form,

ications, Toxicity of
Bulletin

s Digest — Vol. II —
lists physical properties,
icity of manufacturer's
glycolonitrile, lactoni-
cluded. Also ethylene
nitrile, chloropropioni-
hy contains 110 refer-

mid Co., Synthetic Or-
P, 30 Rockefeller Plaza,
quiring, specify CP 5587



for paint

or potato chips

process men value-

DOWTHERM for Safety

4 MORE BASIC DOWTHERM DIVIDENDS

1 Economy—Dowtherm's accuracy, uniformity and long life, plus its greater efficiency, minimize operating and maintenance costs.

2 Simplicity—Systems can be entirely automatic. Pressure adjustment makes single vaporizer do several different jobs at once.

3 Efficiency—High coefficient of heat transfer speeds heating, minimizes equipment size needed.

4 Controlled Accuracy—Precise, uniform temperatures over a wide range. Pressure regulation holds temperatures constant. Maximum benefit in vapor stage.

Yes, in addition to its economy, simplicity, and efficiency, Dowtherm is safer!

The use of Dowtherm permits the use of a system in which the fire is removed from any flammable material in process. Because of its high flash point Dowtherm is not generally classified as flammable and as a result insures safe handling in shipping and in storage.

Today Dowtherm users, whether they be paint manufacturers or food processors—or engaged in any other high-temperature operation—enjoy a security unknown in earlier systems. If your operations require precise, low-pressure heating in the 300°-725°F. range, write to Dow for complete information about Dowtherm.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis
Houston • San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Canada

When inquiring check CP 5588 on handy form, pgs. 2-3

CHEMICAL COMMENTS

NEW AROMATIC SPECIALTY FOR PERFUMES, SOAP, COSMETICS

C.64 is a new Dow Aromatic Specialty. It possesses richness and warmth, freshness and sparkle—making it adaptable to both modern and oriental type perfumes. Its odor is powerful and spicy, with a slightly minty touch. A highly stable, crystalline material, C.64 blends well with citrus oils and dissolves even in dilute alcohol. It will not discolor milled soap or cosmetic preparations and is therefore a valuable ingredient in the manufacture of those products.

PROPYLENE GLYCOL USED AS SHORTENING EXTENDER

The food industry is making increasing use of low-cost Dow propylene glycol because of its unusual properties as a solvent, humectant, preservative, and wetting agent. Through the wetting action of this highly purified material it has been found possible to extend the effectiveness of shortening in producing baked goods. Propylene Glycol aids in the dispersion of the shortening throughout the batch with a consequent saving of critical shortening not otherwise possible.

AN EFFECTIVE THICKENER FOR IMPROVED DYE PRINTING

Methocel, Dow cellulose derivative, has demonstrated unusual possibilities as a dispersing, thickening, and binding agent. One of its important applications is in textile printing. As a thickener for fast color salts and diazotized bases for printing on naphthol prepared grounds, it yields prints of exceptional brightness, smoothness, and sharpness of mark with greater penetration and efficiency of dye-stuff. Methocel can be used in dyes either for machine or screen printing.

Additional information about any of
these products is available on request.



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XUM

Materials

Use Felt-Rubber to Pack, Seal, Gasket

Various combinations lend self-lubrication, other qualities

USES — Sealing, packing and gasketing materials. One, Vistex, is used for packing washers for fuel pumps, plunger seals, faucet seals and gaskets, seals and washers for applications involving organic solvents, oils and other fluids. Other material, Oil Foil, finds uses as wheel and motor bearing seals, and on horizontal and vertical machine spindles and bearings. In refrigeration units, others where positive bearing seal protection is required.

FEATURES — Vistex is a self-lubricating material and gives positive sealing and uniform performance at minus 70°C to plus 54°C; does not overheat, bind or break down prematurely under extreme operating conditions of temperature, shock loads and plunger rotation. Manufacturer states that it remains operative when used with all types of natural and synthetic hydraulic fluids.

Many types of Oil Foil washers retain oil to extent of more than 400% of their own weight, ready to bleed oil to point of friction as required. Hycar rubber septum on outside surface of such a washer will prevent loss of lubricant to outside, and provide inside positive sealing against dirt and moisture.

DESCRIPTION — Vistex is a Hycar American-rubber latex-impregnated and laminated felt-base packing material. Originally designed as self-lubricating packing for automotive hydraulic shock absorbers, it was later adopted as a packing washer or seal in the hydraulic tricycle landing gear shock and shimmy dampers of military aircraft.

The ratio of felt fibre to the amount of Hycar impregnant used as a saturant is controlled to give the desired self-lubricating property. In proper balance, the felt fibres retain sufficient capillarity or wetting property to make a well-lubricated packing, and the Hycar latex saturation is so complete that positive sealing against dirt and moisture, dimensional stability (minimum expansion or contraction under hot and cold operating conditions), and excellent resistance to oils and fluids are obtained, it is reported.

Oil Foil seals combine, in a single laminated bearing seal washer, the conventional felt seal and one or more

FOR YOUR INFORMATION



ATION

we of Monsanto
Access Industr



Efficient boiler operation Controlled oxygen corrosion

Among the hundreds of Monsanto chemicals for industry, few have more important applications than Santosite (Sodium Sulfite Anhydrous, Technical). Santosite provides operators of large and small boilers with an efficient means of controlling oxygen corrosion... making possible considerable savings in maintenance and replacement costs.

Santosite accomplishes its work economically—by eliminating all traces of residual oxygen in boiler water. It removes the dissolved oxygen by combining with it to form sodium sulfate, which is water-soluble under boiler conditions—and therefore does not contribute to the formation of sludge.

For more detailed information, send for a copy of Monsanto Technical Bulletin O-26, "Santosite for Removing Oxygen for Boiler Feed Water." Ask for it on the coupon if more convenient. *Santosite: Reg. U. S. Pat. Off.*

What is a good germicide?

By definition, a good germicide must be highly effective in killing germs. Santophen 7 not only accomplishes this, but meets many other important practical requirements as well. It is non-staining; can be readily formulated; is effective in the presence of organic matter; is comparatively non-toxic and, in use-dilutions, is non-irritating to man and the higher animals; is general in its germicidal effect (not merely specific toward certain microorganisms).

Reasonable in cost, Santophen 7 possesses other desirable properties, such as faint but pleasing odor, freedom from corrosive action on metals, stability. In addition to meeting the requirements for modern disinfectants, Santophen 7 can also be used to advantage as an industrial preservative and algicide.

For complete application and technical data, write for a copy of Monsanto Technical Bulletin O-3, "Santophen 7, a Germicide and Industrial Preservative." If you prefer, simply note your request on the coupon.

Santophen: Reg. U. S. Pat. Off.

NEW DETERGENT *

MXP

* contains the non-ionic type of surface-active ingredient.

controlled sudsing—high cleaning action

Developed especially for industrial use, Monsanto MXP is a new scientific "built" controlled-sudsing detergent containing the non-ionic type of surface-active ingredient. The builders are chosen specifically for their synergistic qualities, which means marked economy in use. MXP also possesses the singular quality of producing relatively little sudsing, while exciting unusual high cleaning action.

MXP is effective over a broad range of solution concentrations, and under many process conditions. Because of its non-ionic nature it does not form insoluble curds in hard water, and is recommended for heavy-duty operations such as metal cleaning, bottle and dairy equipment cleaning, mechanical dishwashing. MXP may be used alone or in combination with other alkaline detergents.

Complete information on MXP is contained in Monsanto Technical Bulletin P-122. For your copy, write to MONSANTO CHEMICAL COMPANY, phosphate Division, 1704 South Second Street, St. Louis 4, Missouri... or ask for it on the convenient coupon.

STEROX CD

Sterox CD, the 100%-active non-ionic type surface-active agent and detergent, is now available. SUGGESTED USES: Mixed with phosphates, carbonates or silicates, it forms a controlled-sudsing detergent of high efficiency in hard or soft water; emulsion cleaner for metals; emulsifying agent in insecticidal solutions; dispersing agent for insecticidal dusts. Send for Monsanto Technical Bulletin No. P-129 on Sterox CD.

Sterox: Reg. U. S. Pat. Off.



FOR
LACQUERS

fla
SA
superior
improvement

With Santocel C, lacquer manufacturers now obtain quality matte effects and, at the same time, improve marbling. Along with its high flattening efficiency, Santocel C actually reinforces lacquer films.

Santocel C has negligible effect on clarity. These outstanding qualities, as others listed at the right, make Santocel C the ideal flattening agent for protective coatings. If you would like more information, write to MONSANTO CHEMICAL COMPANY, Merrimac Division, Boston 49, Mass.

Advantages

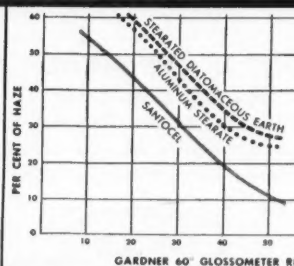
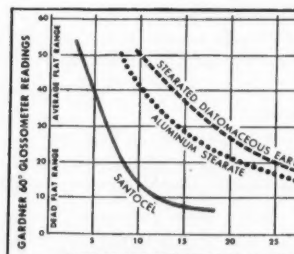
1. Maximum flattening to four times as fast as other flattening agents.
2. Produces a matte effect on flexible surfaces.
3. No adverse effect on clarity.
4. Improves marbling.
5. Produces hard, durable films.
6. Does not "swell" surface of flexible materials or distortions of the film.
7. Can be used on surfaces which are baked or applied hot.

Higher
flattening
efficiency
with

SANTOCEL C

SANTOCEL C

negligible
effect on
clarity



Sanio Chemicals for the
ustries June, 1948

flattening agent
SANTOCEL C
superior matte finishes
improved mar-resistance

Advantages of Santocel C

Maximum flattening efficiency—three
four times as efficient as other flat-
ting agents.

Produces a matte finish with neg-
ligible effect on film clarity.

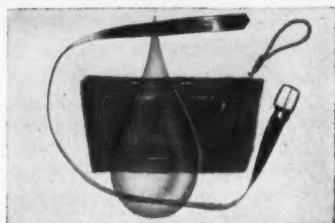
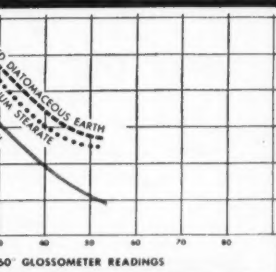
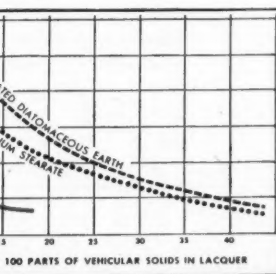
No adverse effects on film properties.

Improves mar and burnishing re-
sistance.

Produces hard dry finish.

Does not "sweat" or "float" to the
surface of flexible coatings on drying
distortion of the film.

Can be used effectively in coatings
which are baked at high temperatures
applied hot. Santocel Reg. U. S. Pat. Off.



Monsanto plasticizers improve resistance to petroleum hydrocarbons

Santicizers E-15 and M-17 will provide
good resistance to petroleum hydrocarbons
in all plastic coatings and molded articles.
Other advantages of these versatile plas-
ticizers include non-toxicity, wide compati-
bility, excellent solvent characteristics and
general chemical stability.

For tough, flexible products, Santicizers E-15
and M-17 are recommended for use with
vinyl resins, cellulose acetate and nitrocel-
lulose. Helpful information on these and
other members of the Santicizer family is
contained in a new booklet, "Monsanto
Santicizers... the quality-building plasticiz-
ing agents." For your copy, write to Monsanto
or simply ask for it on the coupon below.

Santicizer Reg. U. S. Pat. Off.

MONSANTO CHEMICAL COMPANY, 1704 South
Second Street, St. Louis 4, Missouri. District Sales
Offices: New York, Philadelphia, Chicago, Boston,
Detroit, Cleveland, Cincinnati, Charlotte, Birmingham,
Houston, Akron, Los Angeles, San Francisco, Seattle,
Portland. In Canada: Monsanto (Canada) Limited,
Montreal.



SERVING INDUSTRY . . . WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY
1704 South Second Street
St. Louis 4, Missouri

Please send me further information on the following:

Name _____ Title _____
Company _____
Address _____

Materials

impervious septums of 1/64" or 1/32"
Hycar sheet. Although these seals
were originally developed to provide
a grease and oil-retaining washer in
which the Hycar rubber would act as
a positive dam and seal against pres-
surized or low viscosity lubricants,
they are now being used for normal
bearing seal applications. Both ma-
terials are supplied in strips and
washers. They are being manufac-
tured by the American Felt Company,
Glenville, Connecticut.

SOURCE — Hycar American-rubber
latex and sheet stock are products of
the B. F. Goodrich Chemical Co.,
Dept. CP, 324 Rose Bldg., Cleveland,
15, Ohio . . . or for more informa-
tion check CP 5589 on handy form,
pages 2 and 3.

★ Starch Swells at Lower Temperatures

Forms clear, stable, viscous pastes

USES — Paper-sizing ingredient and
translucent, smooth, non-congealing
thickening, binding or dispersing
agent in textile finishing, cleaning
compounds, water colors and paints,
wall paper and poster pastes, disper-
sion of pigments for wet grinding,
and for prevention of scale in boiler
feed water. Excellent laundry starch.

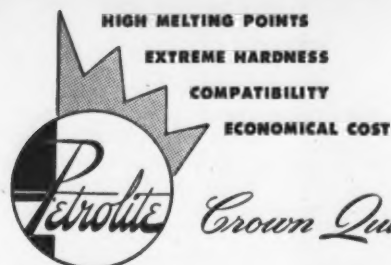
FEATURES — This new type of
starch swells at considerably lower
temperatures, manufacturer states, and
forms clear, stable and unusually vis-
cous pastes. Easily prepared. Unusual
water-taking ability permits dilution
with but slight loss of body.

DESCRIPTION — Available in both
high and low viscosity grades. Pre-
pared by merely adding hot water to
suspension of starch in cold water.
Pastes obtained range from opaque
to very clear, depending upon temper-
ature of water used.

Many of the properties of the starch
are said to be similar to those of car-
boxymethyl cellulose.

SOURCE — Clear Flo starch is made
by National Starch Products Inc.,
Dept. CP, 270 Madison St., New York
16, N. Y. . . or for more information
check CP 5590 on handy form, pages
2 and 3.

For more information on prod-
uct advertised at left, specify
CP 5591 . . . see information re-
quest blank between pages 2-3.



MICROCRYSTALLINE WAX

These high points in the Crown Quality Line are saving money for many wax users. If you are manufacturing any product involving the use of wax, investigate the PETROLITE-Crown Quality line now.

Petrolite Crown Quality Waxes are highly refined microcrystalline waxes. They are 100% petroleum derivatives, and are produced exclusively in the Petrolite refinery. In addition to the qualities noted above, Petrolite waxes have many other attractive features.

Prices, complete information and samples are available on request. Get all the information on Petrolite Waxes—the price advantage over vegetable waxes is substantial.

High Gloss
Low Oil Content
Chemical Inertness
Non Blocking
Excellent Electrical Properties
High Solvent Retention
Water and
Water Vapor Resistance
Wide Color Range

PETROLITE *Crown Quality* **WAXES**

Petrolite Corporation, Ltd. WAX DIVISION
30 Broad Street, New York 4
REFINERY: Box 390, Kilgore, Texas

When inquiring check CP 5592 on handy form, pgs. 2-3

Put
Water to
Work With...

"Carbowax" Compounds

Water solutions of CARBOWAX compounds serve as lubricants for rubber mold release—as vehicles for pharmaceutical and cosmetic ointments and creams—as dispersants for aqueous paints and polishes—and as solvents and couplers for insecticides and dyestuffs.

CARBOWAX compounds can be supplied in carload quantities. Samples on request. Write for the booklet, "Carbowax Compounds."—Form 4772.



CARBIDE and CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation
30 East 42nd Street **UCC** New York 17, N. Y.

Offices in Principal Cities

"Carbowax" is a registered trade-mark of C. & C. C. C.

When inquiring check CP 5593 on handy form, pgs. 2-3

Materials

Directly Determines Chlorine in Water

*American Public Health Assoc.
describes use of pure reagent*

USES — An ortho toluidine dihydrochloride of such purity that it may be used directly in preparing the reagent for estimating chlorine in water.

FEATURES — Because of its high purity, ortho toluidine dihydrochloride has been offered as a replacement for ortho toluidine reagent for chlorine determination. (9th Ed. Standard Methods for the Examination of Water and Sewage, 1946 Am. Pub. Health Assoc., N.Y. pp. 92 and 97).

DESCRIPTION — Material is made by first purifying crude o-toluidine by recrystallization. The dihydrochloride is prepared and certain impurities are removed by absorption on Norite. Dihydrochloride is crystallized from solution and recrystallized to insure high purity.

Sensitivity is 0.01 ppm chlorine. N. V. M. is 0.1 %. Aqueous solution (0.1 gm per 200 ml water) should be colorless. Furnished as pale tan leaflets, water-soluble. Directions for use appear in "Standard Methods of Water Analysis", 9th Ed., pp 93-98, published by the American Public Health Assoc.

SOURCE — Manufactured by Fisher Scientific Company, Dept. CP, 717 Forbes Street, Pittsburgh 19, Pa. . . . or for more information check CP 5594 on handy form, pages 2 and 3.

★

Durable Resin has No Finishing Odor

*Water repellent secures
Quartermaster Corps approval*

USES — Water repellent resin finish for cotton, wool, corduroy and synthetic fabrics. Also protects garments from water-soluble stains due to spilling of ink, milk and beverages.

FEATURES — Tested and approved as a durable water repellent by the U. S. Army Quartermaster Corps. Gives maximum repellency, both initially and after standard launderings and dry cleanings.

Reported to be free from troublesome or unpleasant odor during finishing operations.

Combined with crease-proofing resin

Onyx Suggests ... MAPROFIX NEU

An Anionic Surface-Active Detergent with Unusual Foaming Properties

For ...

- Carpet, Rug and Upholstery Cleaning Compounds.
- Metal Cleaning, Bottle Washing and Similar Industrial Cleaners.
- Anti-Pitting Agent in Nickel Plating.
- Dispersing Agent for Insecticides, Fungicides, Paints and Rubber Compounding.
- Penetrating Agent for Cosmetics.
- Suspending Agent in Paper De-inking Operations.

CHEMICAL AND PHYSICAL CHARACTERISTICS*

Chemical Constitution — Technical sodium lauryl sulfate.

Physical Condition — White powder.

Concentration — 45-50% (30% fat).

Compatibility — Complete with acids up to 2% acidity; with alkalis up to 5% caustic soda, and with hard water.

Stability — Excellent to heat and in storage. Does not develop rancidity.

Solubility — Readily soluble in hot water.

*Completely covered in Onyx Technical Data Sheet No. IND.-3.

Maprofix NEU is one of the most potent of modern synthetic detergents with highly effective wetting, penetrating and dispersing action. It has many other potential industrial uses besides those listed above. We shall appreciate hearing of any ideas you may have along these lines.

ONYX OIL & CHEMICAL COMPANY JERSEY CITY 2, N. J.

CHICAGO • PROVIDENCE • CHARLOTTE • ATLANTA

In Canada: Onyx Oil & Chemical Co., Ltd., Montreal, Toronto, St. Johns, Que.

For Export: Onyx International, Jersey City 2, N. J.



CHEMICALS FOR INDUSTRY

When inquiring check CP 5595 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



- ... 6500 lbs. tensile strength minimum.
- ... excellent tear resistance.
- ... dry, non-tacky film.
- ... no adding of vulcanizing agents ... no heat treatment necessary other than drying.

PROPERTIES

1. Dried film tensile strength..... 6500 lbs. per sq. in. minimum*
2. Dried film ultimate elongation. 1000%
3. Viscosity..... Thin
4. Specific gravity..... 0.96
5. pH Value..... 11 to 11.5
6. Solids content..... 59±0.5

*Tensile strength remains at 6500 lbs. per sq. in. after 300 hours in Greer Oven at 70°C.

APPLICATION

1. Back coating of rugs and fabrics to impart non-slip and fibre binding characteristics.
2. Coating and impregnating of fabric, paper and wadding for strength, water resistance, and base for further coating.
3. Preparation of molds utilizing properties of flexibility and freedom from further treatments.
4. Dipped goods where deposition of film is complete on drying.
5. Adhesive for paper, fabric and leather where bond is improved by film deposit of cured Natural Latex.
6. As an additive to natural latex, as well as to buna and neoprene, for extension and reinforcement.

Write for detailed data sheet:



UNION BAY STATE
Chemical Company Inc.

50 HARVARD STREET, CAMBRIDGE 42, MASS.

Materials

in a single bath, provides economical, durable spot and crease resistance. Imparts some shrinkage control to cellulose fabrics; this action is magnified by adding thermosetting resins, Aerotex Cream-450 or Aerotex Resin M-3, to impregnating bath. Proper formulation of product with resins provides water repellency plus shrinkage control to cotton.

DESCRIPTION — No special equipment needed to process fabrics for water repellency or for multifinishes, since the normal mill impregnating equipment of padders, driers and cure boxes is used.

When treated with this resin, Permel, correctly-designed cotton fabrics will give spray rating by A. A. T. C. C. Spray Test of:

Cloth Treatment	Spray Test
Initial	100
After 3 Launderings	80-90
After 3 Dry Cleanings	80

According to the Quartermaster Corps Tests, the dynamic absorption, which runs as high as 100% on untreated fabrics, will be below 30%, either initially or after 3 launderings or dry cleanings.

Readily pasted, and easily goes into an excellent dispersion. Curing is readily accomplished either in the same chamber used for main drying or in a separate chamber. Curing temperature must be above 275°F.

The hand is not materially different from that of the untreated cloth. Only a minimum effect on dye-stuffs, except those susceptible to formaldehyde.

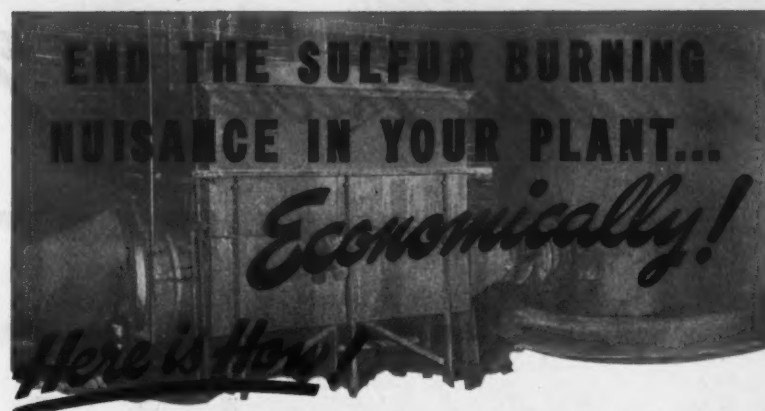
SOURCE — The American Cyanamid Co., Textile Resin Dept., Dept. CP, Bound Brook, N. J. is the maker ... or for more information check CP 5597 on handy form, pages 2 and 3.

★

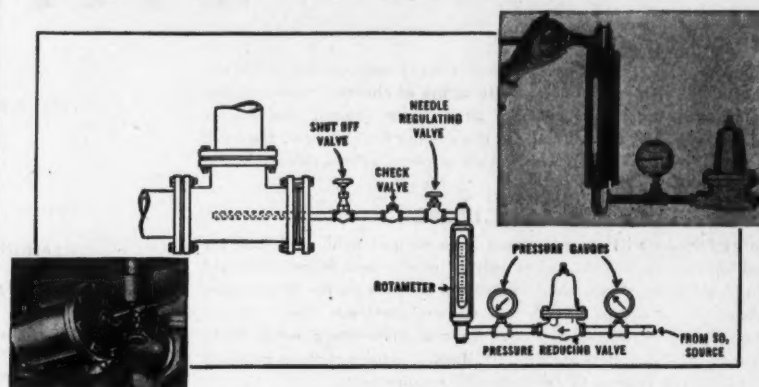
Polishes Most Metals, Alloys "In as Little as 3 Min's."

A general-purpose metallographic polishing compound which "prepares the most difficult-to-polish materials often in as little as 3 minutes" is introduced in a recent bulletin. It may be used in concentrated form, and is reported to eliminate etching and rebuffering in most cases.

Literature also describes polishing cloths and abrasives and specimen preparation equipment. Illustrated. Bulletin 208, issued by Burrell Technical Supply Company, Dept. CP, 1942 Fifth Ave., Pittsburgh 19, Pa. When inquiring check CP 5598 on handy form, pages 2 and 3.



... Replace Your Burner System with Finger-tip Controlled ANSUL SO₂



An Easy-to-Install Ansul SO₂ System gives you these Four Important Advantages

GREATER ECONOMY—Small investment in equipment, materially reduced operating and maintenance costs, and freeing of valuable floor space.

FINGER-TIP CONTROL—Easy, positive, finger-tip control providing extreme accuracy for reaction or adjustment of pH.

HIGHER PURITY—Elimination of impurities inherent in burner gases (Ansul Liquid SO₂ is 99.9+ % [by weight] PURE).

GREATER SOLUBILITY—Solubility in water is 4 to 5 times greater than SO₂ from burner gas.

WRITE THE ANSUL TECHNICAL STAFF FOR FURTHER INFORMATION

PHYSICAL PROPERTIES	
Chemical formula.....	SO ₂
Molecular weight.....	64.06
Color (gas and liquid).....	Colorless
Odor.....	Characteristic, pungent
Melting point.....	-103.9° F. (-75.5° C.)
Boiling point.....	14.0° F. (-10.0° C.)
Density of liquid at 80° F.....	(85.03 lbs. per cu. ft.)
Specific gravity at 80° F.....	1.363
Density of gas at 0° C. and 760 mm.....	2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature.....	314.82° F. (157.12° C.)
Critical pressure.....	1141.5 lbs. per sq. in. abs.
Solubility.....	Soluble in water
Purity.....	99.9+ % (by wt.) SO ₂ (H ₂ O less than 0.01%)
REG. U. S. PAT. OFF.	



Send for Bulletin 020.1, "A Comparison of Ansul SO₂ and Sulfur Burner Gas," and also for your copy of "Liquid Sulfur Dioxide"—a treatise on the properties, characteristics, and industrial uses of Liquid Sulfur Dioxide—written by the Ansul Technical Staff.

WRITE: Dept. A.

ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.
60 E. 42nd St., New York — 535 Chestnut St., Philadelphia

When inquiring check CP 5599 on handy form, pgs. 2-3

When inquiring check CP 5596 on handy form, pgs. 2-3

JUNE, 1948

Page 35

Celanese* Tricresyl Phosphates

CELLUFLEX*

LINDOL*

Celluflex and Lindol, tricresyl phosphates produced by Celanese Corporation of America, offer a wide range of chemical and physical characteristics for many industrial uses. These organic phosphates were first produced commercially in this country by Celanese. They are non-flammable, non-hygroscopic, odorless, clear, oily liquids—miscible in all proportions with most solvents and diluents.

PLASTICIZERS

Celluflex, produced from petroleum base cresylic acid, and coal tar based Lindol, combine excellent solvent power and flame retardant properties, making them ideal as general plasticizers for vinyl resins, cellulosic and resinous plastics and coating materials. They are exceptionally advantageous for coatings and films where extra flame resistance and toughness are desired. Various grades of these products are specially prepared to meet specific requirements.

OTHER USES

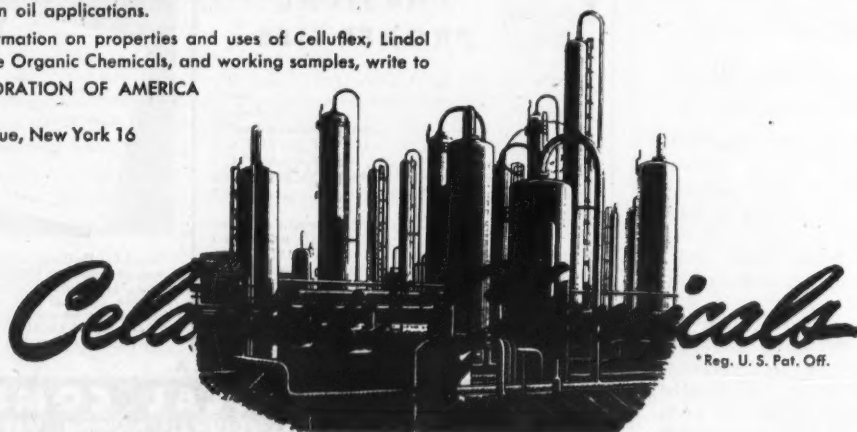
Hydraulic Fluid: Specially compounded Lindol H.F. is widely used as a non-flammable hydraulic fluid—particularly in the die casting industry. Mineral oil hydraulic fluids using Celluflex as a wear reducing additive are now being used extensively.

Lubricant Additive: Lindol H.F. is an important high film strength additive employed to reduce wear and dissolve resinous deposits in heavy duty motor oils designed expressly for automotive, aircraft and specialized industrial uses.

Dust Adhesive: Lindol is also used extensively as a non-flammable dust adhesive in air filtering systems.

Emulsions: Emulsions of these products are available for both oil in water and water in oil applications.

For further information on properties and uses of Celluflex, Lindol and other Celanese Organic Chemicals, and working samples, write to
CELANESE CORPORATION OF AMERICA
 Chemical Division
 180 Madison Avenue, New York 16



CELANESE* ORGANIC CHEMICALS

NOW IN PRODUCTION:

Formaldehyde	n-Propyl Alcohol
Acetaldehyde	Isopropyl Alcohol
Acetic Acid	Butyl Alcohols
Methanol	Methylal
Acetone	Special Solvents

Tricresyl Phosphates

FOR LABORATORY EVALUATION, SCHEDULED FOR FUTURE PRODUCTION:

2-Methyl-1, 3-Pentanediol
 Propionaldehyde

Materials

Manufacture, Properties, Uses of Precipitated Calcium Carbonate Described

Illustrated, 48-page, 2-color booklet, "Precipitated Calcium Carbonates — Their Manufacture, Properties and Applications", describes manufacturer's two precipitated calcium carbonate products: "Snow-Top", which meets U.S.P. requirements, and "Caltec", for technical purposes. Uses of natural, by-product and synthetic carbonates are detailed in one section. Varieties of calcium carbonate found in nature, commerce and industry are tabulated.

Every phase of manufacturing of the precipitated carbonate is covered to packaging of final product. Advantages of method of manufacture are pointed out. Flow diagram is included. Methods of measuring whiteness, test procedures, particle size data and chemical properties are outlined.

Salient properties and fields of application for both products are listed. U.S.P. grades find use in manufacture of cosmetics, dentifrices, pharmaceuticals. Technical grades are used in coating pigment and paper fillers, rubber pigments, paint extender, cleaning and polishing.

Appendices are devoted to use of microscope for dimensions and counts of particles, and to Microsizer, an instrument developed by company for determining sizes of particles occurring in finely divided materials such as pigments and fillers for paper making. Schematic layout of Microsizer is presented.

Bibliography and index are included.

Issued by Industrial Chemical Sales, Division of West Virginia Pulp and Paper Co., Dept. CP, 230 Park Avenue, New York 17, N. Y. When inquiring specify CP 5601 on handy form, pages 2 and 3.

Molding and Extruding Stocks Have Good Properties

Withstand minus 70° to plus 520° F; good gasketing, chemical, electrical properties

USES — Silicone rubber compounds for use in molding, extruding and fabrication of plastics. The rubbers are now being used for gaskets on high speed shafts, diesel, gasoline, jet and gas turbine engines, baking and drying ovens, high temperature lighting equipment, high vacuum systems, capacitor bushings, etc.

FEATURES — Heat resistance, non-adherence to metal surfaces, good gasketing action because of low compression set and stability of surface hardness and resilience. Materials do not tend to cold flow nor vulcanize at room temperature, manufacturer reports. Stocks withstand minus 70° to plus 520° F and have excellent electrical and chemical properties, it is stated. Stocks can be reinforced for extra strength.

DESCRIPTION — Seven standard grades are available, including both molding and extruding compounds which may be readily processed in customary production equipment. Grades 13000 and 13001 are extrusion stocks in white. Grade 13002 is molding stock in brown. Grades 13003, 13005, 13006 are brown stocks for both extruding and molding. 13004 is white stock for both extrusion and molding.

Manufacturer recommends that molding compound be pre-milled for about 10 min. on cold rolls prior to molding

ALCOHOLS • ALDEHYDES • GLYCOLS • KETONES • ORGANIC ACIDS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

When inquiring check CP 5600 on handy form, pgs. 2-3

Materials

to insure satisfactory flow and plasticity. Molding should be performed at low pressures in standard compression or transfer molds and mold design should allow for about 2 — 3% dimensional shrinkage on curing.

Flash-type molds give most satisfactory results at less than 100 psi, while positive or semi-positive molds are usually operated at 400 — 500 psi.

Molding temperatures should be 140 — 160° C and should be maintained for 10 min., depending on size and cross-section of piece. Suggests molds be loaded and unloaded at temperatures below 50° C to prevent blistering and porosity in molded piece.

Extruding of stocks is performed in either long or short-barrelled production machines, but former is preferable. Accurate control of extrusion speed and die temperatures result in better surfaces and closer dimensions for the finished product, it is said. Die design should conform closely with shape of finished part.

SOURCE — These silicone rubber stocks were developed by the General Electric Co., Chemical Dept., Dept. CP, Pittsfield, Mass. . . or for more information check CP 5602 on handy form, pages 2 and 3.

Organic Detergent Not Harmful to Metals, Rubber Hose

Has possible uses as cleaner for piping, heat exchange equipment

USES — Offered primarily as a radiator and engine block cleaner, new product of GUNK line should find uses for cleaning scale, rust and algae from pipe lines and heat exchange equipment. Will inhibit rust and corrosion in ferrous metals.

FEATURES — Possesses self-emulsifying properties and self-scouring action. After use, it is not necessary to neutralize, remove or rinse the emulsified grease and colloiddally-suspended dirt immediately. Not harmful to metals or rubber hose. Chromate content imparts corrosion and rust-inhibiting properties.

DESCRIPTION — A tri-phase detergent of the organic type. Will be distributed in special quart size cans. In radiator-cleaning use, manufacturer states that one quart is simply added to radiator and presence of anti-freeze does not interfere with its action.

SOURCE — Curran Ordnance Chemical Laboratory, Dept. CP, South Canal St., Lawrence, Mass. . . or for more information check CP 5603 on handy form, pages 2 and 3.

Silica Gel Uses and Properties Listed in Bulletin; Uses of Silicofluorides Furnished

A complete tabulation of manufacturer's products and services is provided. Products include certain types of silica gels, silicofluorides, inorganic acids, catalysts, phosphate fertilizers and fertilizer materials, asphalt compounds. Commercial alum and a casting compound are also mentioned. A service for dehydrated packaging and a silica gel air dryer are offered. Uses are pointed out. Form 83.

Issued by The Davison Chemical Corporation, Dept. CP, Baltimore 3, Md. When inquiring, specify CP 5604 on handy form, pages 2 and 3.

CORROSIVE CHEMICALS?

**That is the problem . . .
here is the solution!**



CHEMICAL	COATING RECOMMENDED	DESCRIPTION OF USES
H ₂ SO ₄ (Sulfuric acid)	AMERCOAT No. 21 AMERCOAT No. 30	For immersion in concentrated up to 100%.
HNO ₃ (Nitric acid)	AMERCOAT No. 21 AMERCOAT No. 30	For immersion in concentrated solutions up to 70%.
HClO ₄ (Perchloric acid)	AMERCOAT No. 21 AMERCOAT No. 30	For immersion in concentrated solutions up to 70%.
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HClO ₄ (Perchloric acid)	AMERCOAT No. 21 AMERCOAT No. 30	For immersion in concentrated solutions up to 70%.

FREE CORROSION MANUAL

Causes of corrosion and how to prevent it are fully covered in this booklet as indicated in the chart above . . . Since causes of corrosion vary in different industries, individual manuals have been prepared for each industry.

...WRITE FOR
YOUR COPY
SPECIFY
YOUR
INDUSTRY



**Follow the Amercoat line of
most resistance...**

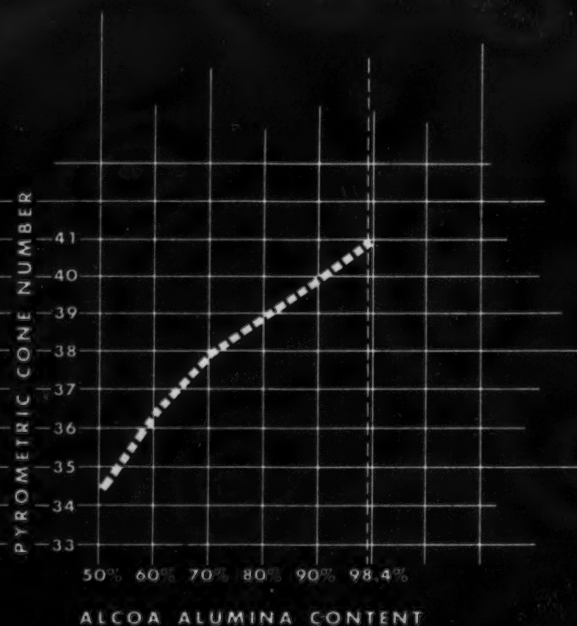
Industrial structures and equipment are under constant attack by highly corrosive chemical solutions. The type and severity of this attack depends upon the chemical involved, its concentration, and temperature. No single formula can provide maximum surface protection under all conditions without compromising on some desirable property. For this reason each of the coatings in the AMERCOAT line is designed to meet the exacting requirements of Corrosion Engineers and Maintenance Men.

To meet the problems of all industries, there are over one hundred protective coatings in the AMERCOAT line. This wide selection is your assurance of getting the proper coating for maximum protection of metal, concrete, and masonry surfaces against the variety of corrosive chemicals in industry.

AMERCOAT DIVISION, AMERICAN PIPE AND CONSTRUCTION CO.

Dept. BH • P. O. Box 3428, Terminal Annex • Los Angeles 54, Calif.

When inquiring check CP 5605 on handy-form, pgs. 2-3



Data, Courtesy of Harbison-Walker Refractories Company, Pittsburgh, Pa.

Refractory Stability Goes UP with the Alcoa Alumina Content!

The chart shows how ALCOA Alumina pushes up the pyrometric cone equivalent of refractories. But this is just one important factor in maintaining peak operating efficiency. The reason why refractories made with ALCOA Alumina last longer and result in less costly downtime is because ALCOA Alumina gives refractories the following money-saving qualities:

- Strength and stability under load at high temperatures.
- Resistance to spalling, abrasion, and fluxing at high temperatures.
- Resistance to corrosive slags and gases.
- Negligible porosity and shrinkage.

BUY FROM YOUR REFRACTORY MANUFACTURER—You can buy brick and other shapes containing various percentages of ALCOA Alumina to meet

your operating temperature requirements from leading manufacturers. We do not make refractories, but we'll gladly refer you to dependable sources of supply. Call your nearest Alcoa sales office or write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 1465 Gulf Building, Pittsburgh 19, Pa.



ALCOA CHEMICALS

ALUMINAS AND FLUORIDES

ACTIVATED ALUMINAS • CALCINED ALUMINAS • LOW SODA ALUMINAS • TABULAR ALUMINAS • HYDRATED ALUMINAS
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE

When inquiring check CP 5606 on handy form, pgs. 2-3

Materials

Harmless Insecticide Agents Synergists to Pyrethrum

Economical, but still potent, rotenone, pyrethrum insecticides are possible

USES — Components to be used in formulation of insecticides, particularly those used on grain, feed and cereal products in the growing, storage and processing stages. Also finds use in combatting most insects that attack animals and poultry.

FEATURES — Harmless to warm-blooded animals. Act as synergists with pyrethrum or rotenone, thereby increasing tremendously the knockdown power of these two compounds, as well as adding their own killing power, manufacturer states. Since the pyrenones are relatively inexpensive, the economic production of an insecticide embodying the full advantages of rotenone and pyrethrum is possible.

DESCRIPTION — The pyrenones are based on two synthetic organic chemicals: piperonyl butoxide (butylcarbityl) (6 propyl piperonyl) ether, and piperonyl cyclonene (3-amyly-5-(methylenedioxy-phenyl)-2-cyclohexenone and its 6-carbomethoxy derivative), combined in various ways with pyrethrum.

Can be used in oil sprays, emulsions, dusts, aerosols or with wettable powders. Manufacturer does not produce insecticides but sells components for their production to other manufacturers. The pyrenones, even though possessing good killing power themselves, will probably find main usage in combination with other insecticides.

SOURCE — These insecticide concentrates are produced by U. S. Industrial Chemicals, Inc., Dept. CP, 60 East 42nd Street, New York, N. Y. . . or for more information check CP 5607 on handy form, pages 2 and 3.

Case-sealing Adhesive Remains Fluid, Prevents Plugging

Liquid converted starch-derived material coats thinner, more cohesive film on cases

USES — Sealing adhesive especially for use in automatic case-sealing machines. Seals flaps of fourdrinier kraft, cylinder kraft, jute lined corrugated containers, solid fiber types. Can be applied by hand-brushing to hold shipping labels, express waybills, etc. to shipping boxes, and to seal flaps.

FEATURES — Coats thinner, more cohesive film on container board without excessive penetration into fibers. Manufacturer states that material remains in fluid condition indefinitely, permitting it to be piped directly to machine glue pans without danger that it will solidify in pipes and cause stoppages. Fast-setting.

DESCRIPTION — Liquid converted starch-derived adhesive called "Boxseal". Does not crust or foam over and contains no silicate or inorganic fillers to cause wear on roller applicators. Claimed to be absolutely non-toxic, odorless and free from staining tendencies.

Has successfully operated on machines having short six and eight-foot pressure units. Dilution of glue is dependent on porosity of container board in use, ranging from 15% to 50% by volume, and setting-speed range of 20

CHEMICAL PROCESSING Preview

Materials

sec. to 60 sec. At 25% dilution, tests show 85% fiber tear on containers in 60 sec. Available in 55-gal. drums and 5-gal. pails.

SOURCE — Manufactured by Paisley Products, Inc., Dept. CP, 1770 Canalport Ave., Chicago 16, Ill., . . or for more information check CP 5608 on handy form, pages 2-3.

★

Sealant Waterproofs Glass Block Mortar; Prevents Cracking

Applied with caulking gun or brush

USES — Especially formulated for use on glass blocks.

FEATURES — In general when ordinary mortars are used a satisfactory bond is not achieved and cracks develop from shrinkage in the mortar. Water is absorbed in these openings and when this water freezes it cracks the glass blocks. This new sealant overcomes this hazard to firm, strong glass block structures.

DESCRIPTION — Klee Sealant for mortar between glass block coats the exterior mortar joints, adheres to the mortar, and forms a tight flexible bond to the glass, expanding and contracting with the mortar as well as the glass without rupturing the film.

It is of plastic-like consistency, and can readily be applied with a caulking gun, or thinned down with solvents if a brushing consistency is desired. The product remains rubbery and bonds tightly to mortar, glass, tile, brick, metal and wood. Even though dry to touch, it can be indented with a finger nail, similar to rubber. White and other colors in quart and gallon containers.

SOURCE — Developed in the research laboratories of the American Fluresit Company, Dept. CP, 635 Rockdale Ave., Cincinnati, Ohio . . . or for more information check CP 5609 on handy form, pages 2 and 3.

★

Volume Provides Fundamental Physical, Thermodynamic Properties of Hydrocarbons

Fundamental physical constants and properties of large number of hydrocarbons are available in 496-page bound volume which is complete collection of all numerical tables issued by the American Petroleum Institute Research Project 44 as of May 31, 1947. In addition to fundamental constants, conversion factors, useful equations, molecular weights, the tables include boiling point data, pressure coefficients of boiling points, freezing points, specific gravities, refractive indices, molecular volumes.

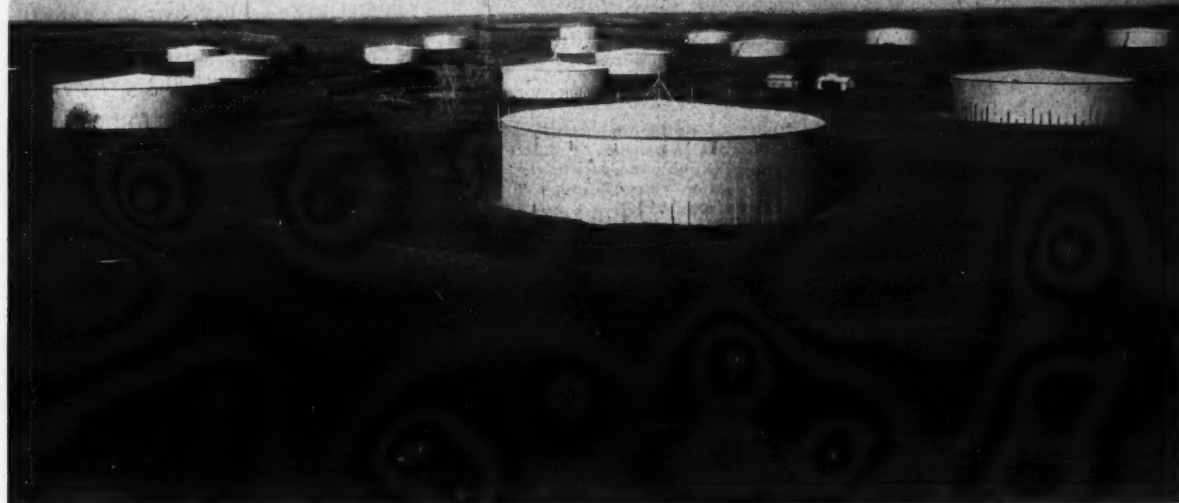
Also included are molecular and specific refractions, specific dispersions, refractivity intercepts, viscosities, vapor pressures, equilibrium constants of formation, thermodynamic properties, cryoscopic constants, heats of fusion. Tables are internally consistent in that all known physical and thermodynamic relations existing between the properties in the several tables are satisfied by the tabulated values.

Source of data is given specifically for each property of each compound in the form of a reference to the included general list of references. NBS Circular C 461 may be obtained only from the Superintendent of Documents, National Bureau of Standards, Dept. CP, Washington 25, D. C., Remit \$2.75 per copy.

JUNE, 1948

DON'T LET THEM SUFFER FROM

Acid Indigestion!



IT's a costly disease, for which the petroleum industry has found the cure in tank coatings based on tough, long-lasting VINYLITE Brand Resins. But the same resistance to acids, alkalis and other strong chemicals inherent in VINYLITE Resin coatings is making them equally economical and useful for tanks, pipes and equipment throughout the chemical and processing industries.

Far more than the cost of frequent refinishing is saved. The coating film remains *intact* despite long service . . . maintaining its integrity and bond. Costly metal corrosion is averted.

VINYLITE Brand Resin coatings are equally effective for metal and concrete. Tasteless, odorless, non-toxic, they make ideal linings for food and beverage tanks, vats and many other types of containers. They not only protect containers from their contents, but

protect the contents from contamination by container materials.

When applied on flat sheet, VINYLITE Brand Resin flexible coating readily withstands the punishment of forming, drawing, crimping and stamping without cracking, wrinkling or losing its bond or integrity. Moreover, the coating eliminates any need of subsequent finishing or painting, often providing notable savings in cost. For detailed technical data and formulations, write Department DW-56.

VINYLITE

TRADE-MARK

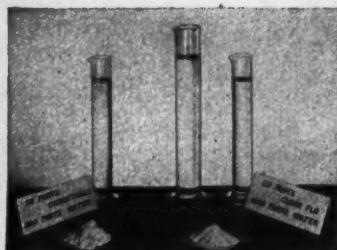
RESINS

BAKELITE CORPORATION, Unit of Union Carbide and Carbon Corporation  30 East 42nd Street, New York 17, N. Y.

When inquiring check CP 5610 on handy form, pgs. 2-3

NEW! CLEAR FLO

STARCHES 'H' and 'L'
(High Viscosity) (Low Viscosity)



HIGH VISCOSITY. CLEAR FLO 'H' starch takes three times as much water as ordinary corn starch to give comparable viscosities.



CLARITY. CLEAR FLO starches are practically transparent while ordinary corn starch assumes a milky white opaqueness.



STABILITY. CLEAR FLO starches still pour readily from the beaker seventy-two hours after being cooked while ordinary corn starch has firmly jelled.

CLEAR FLO starch is the sodium salt of an ungelatinized, low substituted starch acid-ester derivative containing carboxylic and sulphonic acid groups. The great hydrating capacity of these groups results in starches with unique properties not found in ordinary starches plus the characteristics of some of the natural gums. Gelatinization of CLEAR FLO starches takes place with extreme sharpness and at considerably lower temperatures than with ordinary starches.

SWELLING TEMPERATURES AND RATES OF SWELLING. Taking the temperatures at which a 25% aqueous suspension of starch begins to show a measurable increase in viscosity as the gelatinization temperature, the figures below show the relatively low gelatinization temperatures of CLEAR FLO starches in comparison with ordinary starches.

CLEAR FLO 'H'	113 — 129°F
CLEAR FLO 'L'	113 — 129°F
Corn Starch	149 — 151°F
Tapioca	143 — 145°F

When cooked in a boiling bath, the gelatinization of CLEAR FLO starches takes place very sharply with the peak viscosity being reached almost immediately after the swelling of the starch begins. As with other starches, the temperature at which the viscosity increase is noted varies with the concentration, rate of heating and type of agitation.

SOLUTION VISCOSITIES

% Concentration of Dry Starch	Solution Viscosity in Centipoises after 15' at 92° C
CLEAR FLO 'H' 2	420 Approx.
CLEAR FLO 'L' 10	440 "
Corn Starch 5	460 "
Tapioca 4	510 "

POSSIBLE APPLICATIONS. We're ready to match our research and laboratory efforts with yours in further exploration of CLEAR FLO starches in Laundry Starches, Desensitizing gums in Lithography, Cosmetics, Paper Sizing, Boiler Feed Water Compounds to Prevent Scale Formation, Dispersion of Pigments for Wet Grinding, Textile Finishing and Sizing, Low Temperature Swelling Binder for Wall Board, Gypsum, Doll Heads, Asbestos, Briquettes, etc., Cleaning Compounds, Water Colors and Paints, Wall Paper and Poster Pastes.

Address: National Starch Products, Research and Development Laboratories, 270 Madison Avenue, New York City. Plants: Dunellen, N. J., Chicago, Indianapolis and San Francisco. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In Holland: Nationale Zetmeelindustrie, N. V. Veendam.



STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY
When inquiring check CP 5611 on handy form, pgs. 2-3

Materials

Marking Inks Resist
Water, Oils, Acids,
Fading, Etc.

Mark on asphalt, creosote,
ceramics, metals, etc.

USES — Manual or machine marking inks for marking on metal, wood, paper, rubber, glass, leather, plastic, fabric, burlap, ceramic, asphalt, creosote, other surfaces. Developed especially for color code and specification marking.

FEATURES — Fast-drying; can be regulated to suit marking conditions and production schedules. Wide range of colors available in both the machine and manual marking types. Resistant to fading, oils, solvents, acids, alkalis, severe handling, and are waterproof and weatherproof, manufacturer reports.

DESCRIPTION — Machine marking inks are for use with automatic, semi-automatic and manual marking devices, using rubber or steel type. Ink may be fed to type by felt or metal roller, or both.

Manual marking inks are for free-hand marking, stenciling or spraying. Used with marking brush, stencil brush or spray gun. Can be thinned to use with pen point for fine markings.

SOURCE — These inks are products of Neehi Protective Coatings, Inc., Ink Div., Dept. CP, 340 W. Hoffman Ave., Lindenhurst, N. Y. . . or for more information check CP 5612 on handy form, pages 2 and 3.

*

Measure, Index X-ray Diffraction of 3000 Compounds

X-ray diffraction measurements for almost 3,000 powdered chemical compounds are available, indexed in card form, through a program co-sponsored by American Society for Testing Materials and American Society for X-ray and Electron Diffraction.

Identification as positive as fingerprinting is reported, due to the fact that interplanar spacings and intensities presented for each of the compounds are strictly characteristic. Number of indexed substances is being increased, and accuracy of existing data improved, under direction of H. E. Swanson, National Bureau of Standards, Washington 25, D. C.

You Need Only
J C X
TO STABILIZE
Transparent
Vinyl Plastics
Against
HEAT-LIGHT

One product does the job with economy, efficiency, and ease of handling. Write for full particulars today.

Write to us for details,
samples, and prices.



Advance Solvents & Chemical Corp.

245 Fifth Ave. • New York City

When inquiring check CP 5613 on handy form, pgs. 2-3

you get

CORROSION RESISTANCE

and more..

with HAVEG

If you need a non-metallic material with physicals such as strength, toughness, and durability PLUS 100% corrosion resistance, investigate HAVEG.

This versatile molded material, resistant to chemical action throughout its entire mass, is ideal for structural uses. Tanks, towers, and other large structurally strong equipment can be molded in one piece at nominal cost and delivered in from one to eight weeks.

For complete information on how this unusual material can help improve performance and reduce costs on your applications, drop us a line for HAVEG Bulletin F-5.

HAVEG CORPORATION
NEWARK 7, DELAWARE
FACTORY MARSHALTON, DELAWARE

CLEVELAND 14 550 Lorain Building
CHICAGO 11 1201 Palmerly Bldg
HOUSTON 6 Consolidated Bldg 2837 1/2 Grand Blvd
DETROIT 11 601 W. Fifth St
LOS ANGELES 13 401 W. Fifth St
SEATTLE 11 401 W. Fifth St

When inquiring check CP 5614 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

ANHYDROUS SODIUM ACETATE

PURE, CLEAN, UNIFORM, DEPENDABLE

The production of NIACET SODIUM ACETATE is carefully controlled to insure a high quality product suitable for particular jobs such as tanning, electroplating, photography, etc., where purity is essential.

3 lbs. Anhydrous = 5 lbs. 60% Grade

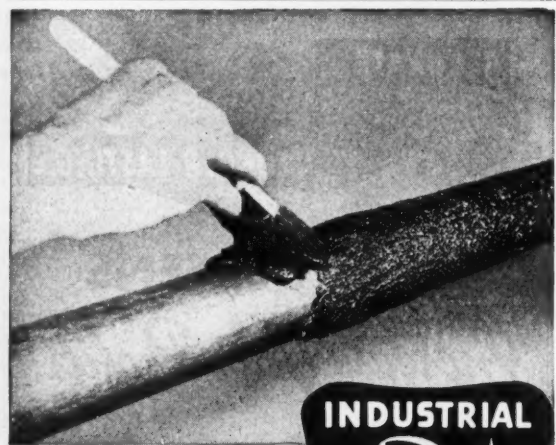
Anhydrous grade is recommended as the best value and the most efficient to use, store and ship.

Also

**NF VIII SODIUM ACETATE
TECHNICAL SODIUM DIACETATE and
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When inquiring check CP 5615 on handy form, pgs. 2-3



**COVER PIPES
TANKS, WALLS**

**INDUSTRIAL
NoDrip**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating. **STOPS CONDENSATION DRIPI** NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5 and 55 gal. drums, ready for use.



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Apply NoDrip to a small area, compare the results with uncovered portions.

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When inquiring check CP 5616 on handy form, pgs. 2-3

JUNE, 1948

Materials

Imparts Good Brushing, Hard Drying to Paints, Varnishes

Resin solution provides excellent water, weather-resistance, high gloss; low sagging

USES — Used in formulating air-drying architectural enamels and undercoats, trim and trellis paints.

FEATURES — Durable. Good brushing and hard drying with minimum sagging at high gloss. Excellent water and weather-resistant properties.

DESCRIPTION — Phthalic-type resin solution called P-470 Beckosol Solution. Following are some properties:

Type	Pure—Drying
Non-volatile	69-71%
Volatile	Mineral Spirits
Mineral Spirits Tolerance	1000%
Suggested Thinner Proportions:	
Petroleum	100%
Color (Gardner-1933)	10 Max.
Color Retention	Excellent
Acid Number	3-7
Compatibility:	
Pigment	Good
Cotton	None (due to solvent and not base resin)

Viscosity (Gardner-Holdt)	Y-Z
Sp. Gr. Solution	0.947-0.957
Lbs./Gal Solution	7.89-7.97
Oil Length	Medium Long

Oil Content (Calculated)	
Lbs./Oil/Gal Solution (Average)	3.61
% Oil on Non-volatile	65

Miscibility with:	
Drying Oils	Fair
Varnishes	Fair
Rosin and/or Derivatives	Absent
Phenolic Resin Modifiers	Absent

Dries dust free in 2-4 hr., tack free in 5-6 hr., hard by 8-10 hr. Baking not recommended. Fair resistance to acids, alkalis; good resistance to oil and grease and abrasion. Phthalic anhydride content (A. S. T. M. Des. D563-45T) is 24% minimum on non-volatile.

SOURCE — This paint-formulating material is produced by Reichhold Chemicals, Inc., Dept. CP, 601 Woodward Heights Blvd., Detroit 20, Michigan, . . . or for more information check CP 5617 on handy form, pages 2-3.

★

Lists Radiation-Laboratory Monitor, Operation and Administration Procedures of Laboratory

The Model SU-3 Laboratory Monitor, for use as a routine contamination monitor in radioactivity laboratories, is pictured and described in the first 5 pages of a 12-page publication. Specific uses, features, specifications are presented, as are wiring diagrams and technical descriptive text.

6 pages discuss "Practical Aspects of the Administration and Operation of a Laboratory for Radioisotopes". Figure shows the approximate ranges of activity for various classes of radioisotope investigations. Sections discuss radioactivity and monitoring, health monitoring, contamination monitoring. Excerpts from government regulations governing shipment of radioactive materials are presented.

Listed are manufacturer's present products and services and forthcoming equipment. "Tracerlog" No. 9, issued by Tracerlab, Inc., Dept. CP, 55 Oliver Street, Boston 10, Mass. When inquiring, specify CP 5618 on handy form, pages 2 and 3.

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When inquiring check CP 5619 on handy form, pgs. 2-3

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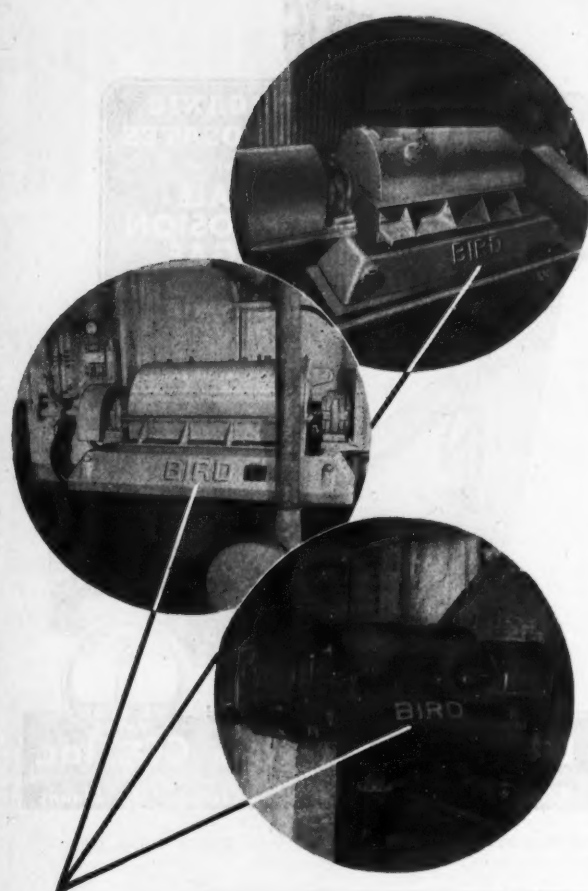
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The BIRD does the job in minimum space without filter cloths, filter media, vacuum or auxiliaries.

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BIRD MACHINE COMPANY
South Walpole, Massachusetts

When inquiring check CP 5621 on handy form, pgs. 2-3

Page 42

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications
... as selected by Technical Editor, H. McCormack

"Reduction to Practice" of a Chemical Invention

"Reduction to Practice" frequently becomes of vital importance when priority of invention is contested.

It is necessary that certain acts and records of the claimant meet stringent legal requirements if a case is to be properly proved.

The author discusses the factors which, added together, constitute inventorship.

Acts which may or may not be deemed reduction to practice are presented by means of cited cases with the accompanying decision on each case. The question as to proper tests for a mechanism, or on a product, is answered by presenting numerous examples of proper and improper tests as employed in specific instances, according to rules laid down by the Federal Courts.

Inventors and researchers are cautioned as to: dated records; drawings and models; witnesses to all records; proper testing of mechanism or product, with full signed, dated and witnessed records of such tests.

Copies of this complete paper are available to those interested from Frank H. Mark, Patent Lawyer, 120 S. LaSalle St., Chicago 3, Ill.

★

Chromated Protein Films Inhibit Corrosion

This report discusses the work done on the inhibition of corrosion of various metals. Such protection is compared with other more common protective methods.

Physical properties of the chromated protein films are given. Methods for most satisfactory application of the films to the metallic surface are described. (From "Technical Report No. 1208, of the National Bureau of Standards")

★

Effect of Baffles on Agitator Power Consumption

A study of power consumption during agitation is reported. Impeller was a simple paddle; agitated liquid was water.

The objective: determination of the power consumption as related to size and position of baffles, location of impeller in liquid, and diameter of containing tank.

It was determined that, for "a fully baffled condition," there was a maximum power drawn by the impeller at a given speed. Equipment, experimental procedure and data obtained are presented. Six pages, illustrated with 7 figures. Includes 12 tables of data. (Chemical Engineering Progress, March 1948)

★

Production of Hydrogen and Synthesis Gas

Authors report test data of the gasification of rice and barley sizes of anthracite and lump coke in a commercial producer plant, slightly modified to blast the bed continuously with oxygen-steam mixtures instead of the conventional air-steam mixtures.

Data for plant scale tests on the catalytic conversion of excess carbon monoxide to hydrogen form the basis for heat and material balances calculated for the production of

"synthesis gas" having a hydrogen-carbon monoxide ratio of 2:1, and for commercial hydrogen suitable for ammonia synthesis.

Relative efficiency of synthesis gas production by this and other commercial solid fuel gasification processes is discussed. This 8 page article includes 5 figures, 8 tables, 1 photograph and a bibliography. (From "Industrial & Engineering Chemistry", April 1948)

★

Design and Construction of Arc Welded Steam Platens

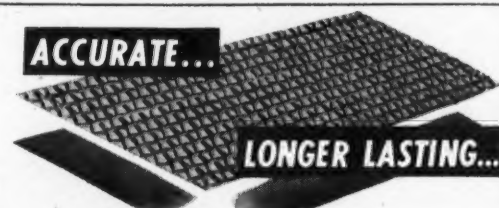
Article describes a new method of platen construction. Methods of fabrication are given in detail and illustrated by sketches and photographs. Savings attained by using this fabrication technique are enumerated. Consists of 2 pages including 6 figures. (From "Rubber Age", February, 1948)

★

Lubrication of Heavy Roller Bearings

Article tells how the increased use of heavy roller bearings in industry has led to study regarding satisfactory lubrication.

Presents results of such a study in which two greases were



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CHEMICAL PROCESSING Preview

tested at a speed of 80 mph. Bearings used are described. Chemical and physical analyses of the grease are tabulated. Effects of varied compositions are discussed. This 3 page article includes 5 figures and 1 table. (From "Petroleum Refiner", March, 1948)

Purification of Synthesis Gas

This 11 page article, including 6 figures, 4 tables and a bibliography, discusses the difficulties arising in the purification of such gas as compared with the purification of gas produced from coke.

With special reference to gas produced from coal, the authors outline the purification specifications for Fischer-Tropsch synthesis gas, some of the established purification processes which may be used to meet these specifications, and analytical methods which may be employed to deal with the extremely low concentrations of impurities which may be tolerated in synthesis gas. (From "Industrial & Engineering Chemistry", April 1948)

Industrial Oxidation of the Lower Aliphatic Hydrocarbons

This article discusses some of the aspects of such processing. Mentions various possible products.

Comments on companies applying such techniques, and the amount of material available for such treatment.

Stresses the importance of close temperature control. Discusses possible reactions and the desired catalysts to produce required results. Five pages, including 5 photographs and 1 table. (From "Petroleum Refiner", April 1948)

Incineration Solves a Waste Disposal Problem

Article discusses an incinerator plant which enabled a chemical company satisfactorily to dispose of a highly objectionable waste. The operating method employed is described. Two page article includes 6 photographs. (From "Chemical Engineering", March 1948)

Glass Electrode: Effect of Annealing and Other Heat Treatments on pH Response

A study was made of pH response of electrodes made from Corning .015 glass. Paper presents the methods used in the study and the conclusions resulting therefrom.

Article accounts for some of the idiosyncrasies previously noted in the behavior of glass electrodes. A method is pointed out by which the electrodes can be restored to a correct reading. 7½ pages, including 9 figures and 8 tables. (From "Journal of Research — National Bureau of Standards," February 1948).

Infra-red Drying and Baking

This 1½ page article, illustrated with 4 photographs, calls attention to advantages pertaining to the infra-red drying and baking of protective finishes.

Describes a gas fired unit having a rate of about 10,000 BTU with a size of 23" x 12" x 4". Units can be quickly assembled into banks or tunnels.

Panel temperatures can be varied appreciably, with limits stated. Methods used for temperature control are discussed. (From "American Gas Journal", April 1948)



View of Oceco 3" Screwed Connection Vent Valve with Flame Snuffer and Chain.

View of Oceco 6" Flanged Connection Vent Valve showing mounting on Oceco Flame Arrester.

● Oceco Vent Valves provide positive and dependable control of tank breathing. They prevent the free discharge of vaporized liquids resulting from fluctuations in temperature,—and restrict tank breathing, resulting from pumping into a tank. They avoid any serious lowering of gravity ratings;—retard the formation of gum;—and avoid "cave-ins" and "blow-outs" resulting from excessive vacuum and pressure.

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ings provides large vacuum relief. The drip edges on the valves carry away any condensate, thus protecting the valves against corrosion and freezing, and the stem guided construction prevents sticking and "cocking."

The housings are semi-steel castings that can withstand direct exposure to flames for long periods of time, and consequently provide a solid support for the valves, valve guides and seats, keeping them in proper alignment and assuring tight closure at all times.

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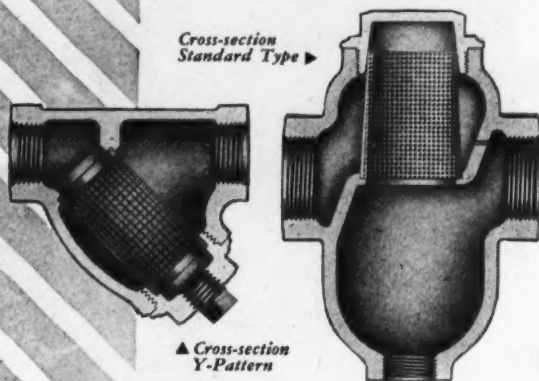
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When inquiring check CP 5623 on handy form, pgs. 2-3

Stop damage

**...FROM DIRT AND
SCALE IN PIPE LINES
INSTALL CRANE
SEDIMENT SEPARATORS**

Cross-section
Standard Type ▶



▲ Cross-section
Y-Pattern

LOOK out for costly damage to valve seats where there's gritty foreign matter in pipe lines. It's also a common cause of rapid wear on stem threads and of poor valve operation. It can do serious harm to gauges, automatic machinery, and other flow-control equipment.

A simple, efficient, and low-cost remedy as well as preventive measure for such damage is to install Crane Sediment Separators. They screen out and trap all solids. They do it automatically, without restricting flow. They pay for themselves in damage avoided. Periodic blowing-out is only maintenance required.

Crane Sediment Separators are made for working pressures up to 600 pounds steam. Iron patterns in sizes up to 12 in.; steel, up to 1 1/4 in. See your Crane Catalog or,

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Page 44

Ideas

Continuous, Automatic Process Is Source of Tonnage Oxygen

*Low-pressure turbo-expander heart of system
making gaseous oxygen of 95% purity*

Gaseous oxygen of 95% purity has been in production for over two months in the new pilot plant of the Elliott Co., Jeanette, Pa. Operations during this period indicate that the process can operate indefinitely without the necessity of periodic defrosting shutdowns, thus overcoming one of the major disadvantages of similar plants which are unable to stay on stream continuously.



Low temperature turbo-expander

During this time the operation was entirely automatic except during periods of obtaining special test data.

The success of this initial effort points to early construction of plants that will produce more than 25,000,000 cubic feet (1000 tons) of oxygen per day.

The nitrogen from the process is so pure that it can be used as a chemical raw material or for bright annealing in steel mills.

It is expected that with the use of oxygen the output and economy of open hearth furnaces, blast furnaces, Bessemer converters and electric furnaces can be greatly increased.

Quantity oxygen is also essential to production of new synthetic gasoline by processes now planned. The use of oxygen combined with natural gas opens up a new source of supply of gasoline, fuel oil and chemicals. Another point of interest is the production of substitute natural gas made at the mines by gasification of coal through the use of oxygen.

During the war the Elliott Co. became active in the developments in connection with the oxygen program being carried on for the government by the National Defense Research Council. The company's principal contribution

was a design for the first successful low-temperature turbo-expander produced in this country.

The turbo-expander is the heart of any low-pressure system for the manufacture of oxygen and is essentially a small, high-speed, radial flow turbine, the principal function of which is to produce refrigeration at the extremely low temperature levels required for the distillation of air into its components. Useful power is developed as a by-product.

Upon successful completion of this project, development of the complete oxygen system was begun. In addition to the features already mentioned, the system is completely immune to possible dangers of acetylene explosion. The system provides for a straight-forward and simple mechanical means of eliminating dangerous hydrocarbons. Also, the plant is not subjected to the necessity for periodic shutdowns for deriming to remove accumulated deposits of water and carbon-dioxide. The system operates at reduced loads without sacrifice of efficiency.

Like many other oxygen processes, the Elliott system depends upon reversing heat exchangers to pre-cool the air to liquefaction temperature and at the same time freeze out water vapor and carbon dioxide. These accumulated deposits are periodically removed by reverse flow of effluent nitrogen. In this system these reversals take place every three to four hours instead of every two to three minutes, as is common with other systems. Heat exchangers



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GLOBE STEEL TUBES

When inquiring check CP 5625 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

in this system require only one hot and one cold gas as contrasted to the multifluid exchangers necessary in existing processes.

All controls are automatic and can be set to maintain constant purity over the entire range of operating conditions, or the purity can be varied at will by a simple adjustment. The process is truly a low-pressure system in which the air is compressed to about 5 pounds per square inch gauge, conditioned and cooled to below minus 300 degrees F, and charged to a single fractionating column, so that all controls can be related to the desired purity and optimum distillation conditions for minimum power consumption.

The gaseous oxygen is boiled off from the reboiler and delivered as the product at approximately atmospheric pressure, after having been warmed up to room temperature in a heat exchanger. Effluent nitrogen from the top of the fractionating column which contains not more than 1/2 to 1 per cent oxygen is used to provide the refrigeration for pre-cooling the air entering the process. A small portion of this nitrogen is used for the removal of the deposited impurities from the heat exchangers while the bulk of it is available at approximately 99.5 per cent purity as a nitrogen product.

An external refrigeration cycle recirculates pure nitrogen from the top of the column through a heat exchanger and compressor system, finally obtaining the required amount of refrigeration by expansion through the Elliott turbo-expander. (Elliott Co., Jeanette, Pa.)

Non-Sparking Magnesium Tubes Carry Gasoline Into Tank Cars

Easier handling, long service life, lower cost among many advantages



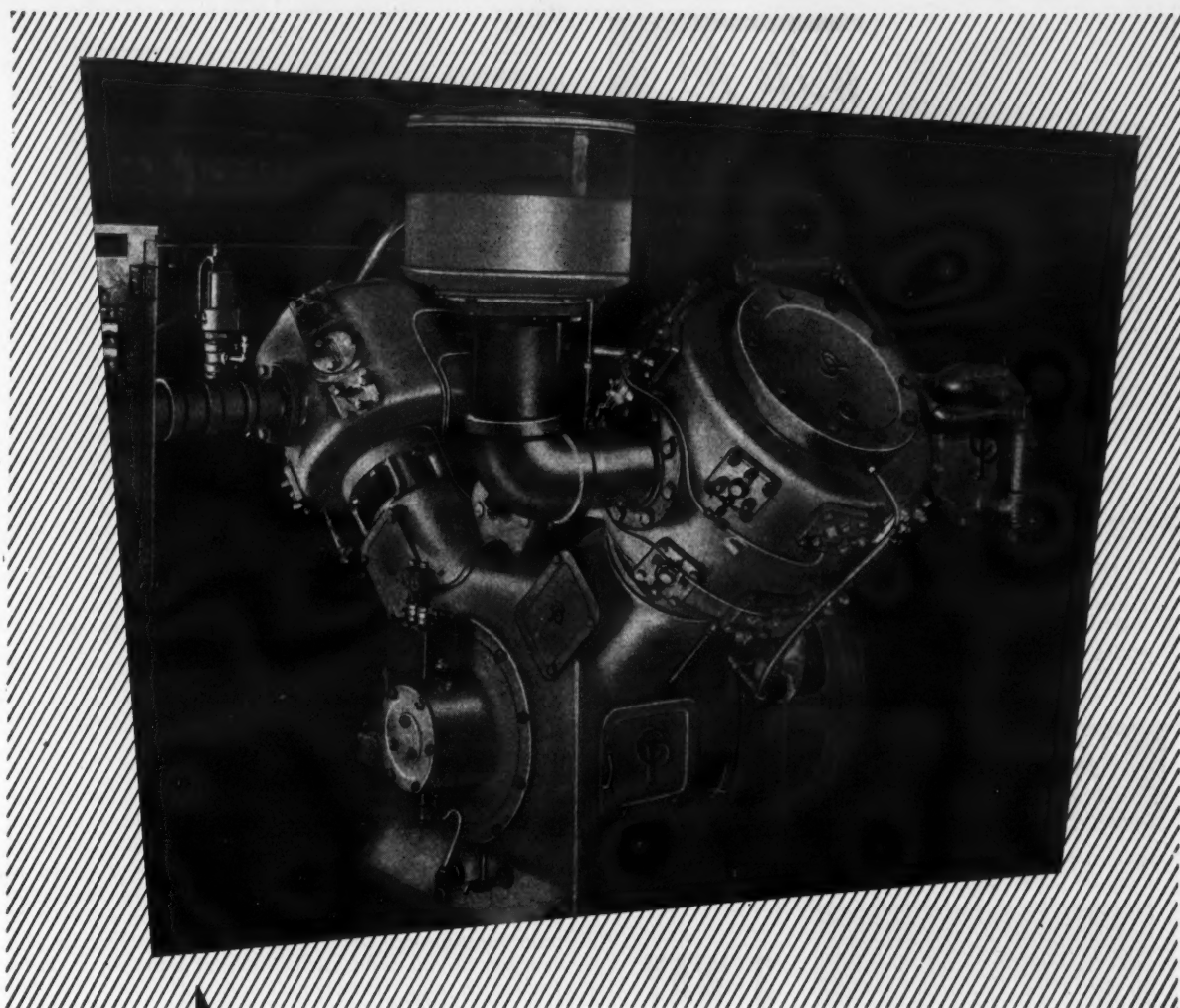
Attaching hose coupling to carloading tube

Magnesium carloading tubes for transferring gasoline into railroad cars offer the advantage of light weight for easy handling, lower cost than heavier metals and assurance of the same non-sparking performance that is essential to safety. The three inch diameter magnesium tubing is used to construct the spouts which are

long enough to reach to the bottom of a standard tank car. Fluid is thus conveyed to the bottom of the car without splashing — as a precaution against fire. A nipple is welded to one end of the tube, and the end threaded for screwing into the loading hose.

The light weight eliminates the need for counter-balancing equipment used with heavier tubing.

As magnesium can be conveniently extruded to shape, fabrication costs are less than those used in making tubes of heavy material. The thick wall sections provide excellent service life. (Dow Chemical Co., Midland, Mich. furnishes the material for, but does not manufacture, this product.)



It's easy to install!

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Shipped intact as a "package unit," ready for external connections, a CP Type Y Compressor can be set up quickly with minimum expense. It needs only a simple foundation, and requires no special skill to align and install it. Its compact design renders it ideal where floor space is restricted.

It operates at high efficiency with low maintenance because of such features as large area Simplate

valves . . . multi-step capacity regulation . . . effective inter-cooling . . . precision bearings . . . force-feed lubrication.

Available with built-in or direct-

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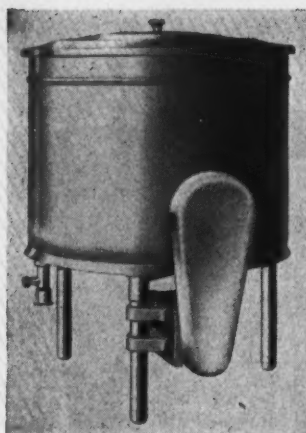


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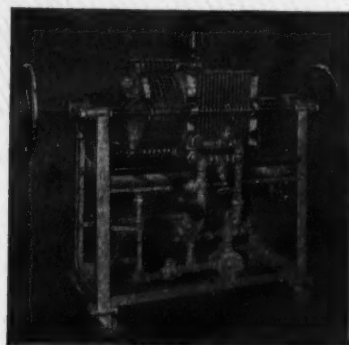
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STAINLESS STEEL TANK SPECIALISTS
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MULTIPLE
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Here is a filter designed to reduce filtering costs! The 3-way unit pre-filters and polishes in one operation. Either section can be used independently and the pump can also be used as a separate transfer unit if desired. Single hand wheel for each section — simple trouble-free operation.

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When inquiring check CP 5628 on handy form, pgs. 2-3

Page 46

Ideas

Cure Tubing, Strip, Channel Stock, Rubber Thread Electronically

Curing time cut, product quality improved

Electronic curing of such articles as tubing, strip and channel stock contributes to product quality and cuts curing time from an hour and a half to two minutes in many instances.

Electronic vulcanization of rubber has been carried on for several years on an experimental basis by The B. F. Goodrich Company. Now, it has been adopted as standard production procedure for certain types of extruded parts.

The electronic curing eliminates considerable product handling during manufacture. It materially speeds up processing by making it possible to run in a continuous line from the extruder. Electronic energy waves create internal friction, instantly generating a temperature of about 300 degrees. (The B. F. Goodrich Company, Akron, Ohio.)

Many Applications Foreseen For Electric Device Casting Resin

*Components cast in rigid block, providing
ruggedness and saving space*

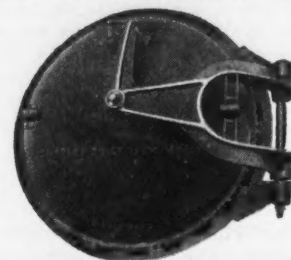
A new potting compound — NBS Casting Resin (National Bureau of Standards) — can be readily employed in many high-frequency devices requiring such mechanical-electrical insulation. The resin is a result of experience gained in fuze-development at the National Bureau of Standards. It has been formulated through a systematic variation of resin constituents. It is important to note that the advantages of this resin can be realized especially in high-impedance, high frequency devices. The resin has fine characteristics for a variety of uses. Its cost at present precludes its use on a competitive basis except where its characteristic features are essential.

The preparation is relatively simple. Four steps are necessary for optimum results. (1) Elimination of the inhibitor; (2) Pulverization and removal of the filler from the catalyst; (3) Mixing; (4) Casting.

Elimination of the inhibitor: the following procedure is suggested by the Bureau of Standards. In a separatory funnel, mix equal quantities of 2,5 dichlorostyrene and a 10% solution of sodium hydroxide. Shake well and allow the liquids to separate. The upper layer will be the sodium hydroxide solution containing the extracted inhibitor and the lower layer will be the dichlorostyrene. Draw off the dichlorostyrene and discard the sodium hydroxide solution. Repeat this operation using fresh sodium hydroxide solution. The dichlorostyrene is then washed three times with distilled water, separating and discarding the water (the upper layer) each time. After the final washing, the inhibitor-free dichlorostyrene is transferred to a beaker and a drying agent such as calcium chloride or "Drierite" is added. The dichlorostyrene is stirred for a few minutes and allowed to stand for 10 to 15 minutes. Finally the dichlorostyrene is filtered through a fluted filter containing some fresh calcium chloride. It is now ready to be used in formulating the casting resin.

The next step is pulverizing and removing the filler. The elimination of the filler from the catalyst increases its sensitivity to shock, and violent explosions can result unless the catalyst is handled with care. Use gentle stirring to in-

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When inquiring check CP 5630 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

corporate the catalyst in the resin, and avoid shock and impact.

Dissolve as much benzoyl peroxide as possible in a minimum quantity of acetone by stirring the acetone while adding the benzoyl peroxide. Filter off any inert filler. To the acetone solution add an excess quantity of distilled water until all the benzoyl peroxide is precipitated. Filter the acetone through a fluted filter and dry the benzoyl peroxide for two days at 60 degrees C. The benzoyl peroxide is now filler-free and in an extremely fine state of division, permitting quick solution in the casting resin.

Step Number 3 is mixing. The casting resin is best prepared by first adding all the liquid ingredients to the mixing vessel and then adding both polymers at the same time. Immediately after incorporating the polymers, the mixing vessel is placed on a roll to prevent clumping and is rolled until a viscous dispersion is formed. This usually takes about 16 hours. For most efficient mixing, the vessel should be no more than two-thirds full.

Compounds	Amount by Weight — %
2,5 dichlorostyrene	33
Styrene	21
Hydrogenated terphenyl (Monsanto HB40)	13
40% Divinylbenzene Solution (Dow Q302.4)	0.5
Poly 2,5-dichlorostyrene	21.5
Polystyrene	11.0

This formula as tested gives the order in which the components can best be mixed.

There are two methods employed in casting, depending upon the volume of casting resin used. Small volumes are best polymerized at 50-60 degrees C. by using a 0.1% — 0.5% benzoyl peroxide. The catalyst may be added to casting resin a day before intended use. This permits all the bubbles stirred into the casting resin to disappear. This is not necessary, however, as bubbles will be released by the casting resin prior to gelation. After gelation any exposed surface should be flooded with glycerol. This will permit the formation of a hard surface. Polymerization is usually completed overnight.

Large volumes of casting resins are best polymerized by initially curing the catalyzed resin (from 0.05 — 0.5% benzoyl peroxide) at 30 degrees C. for from 2 to 3 days.

Then the temperature should be raised to 50 to 60 degrees for a final overnight cure. For stability of the final product, the resin should be cured for an additional period of about 10 days at 50 — 60 degrees.

The special features of NBS casting resin make feasible many new applications of electronic devices. By rigidly embedding electronic circuits or even complete plug-in assemblies, the compound provides excellent insulation as well as protection against rough handling and deteriorating atmospheric conditions. It is well adapted for use with subminiature electronic equipment built by printing techniques now under developmental research by the Bureau and by industry. Several practical applications of resin potted circuits at the Bureau have given operation comparable to that of conventionally constructed devices. The resin should be useful in high-impedance control devices in heavy industry to provide adequate protection against such conditions as vibration, acid fumes, high humidity, and salt spray. Such conditions are encountered in steel mills, plating plants and similar industries. Other potential uses include the potting of components and subassemblies for radar equipment, hearing aids, portable radio transmitters and receivers, and numerous subminiature electronic control devices.



TO COMPETE AT A PROFIT YOU CAN'T AVOID MODERNIZATION

STURTEVANT EQUIPMENT INCREASES PRODUCTION AND CUTS COSTS

Sturtevant Equipment is your answer to today's high labor and production costs.

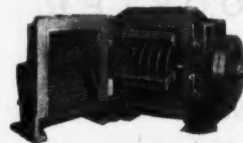
For instance, take the Sturtevant air separator . . . this versatile machine increases output from 25% to 300% . . . lowers power costs by as much as 50%, too. In addition, it assures accurate fines to 325 mesh and finer. No wonder you'll find hundreds of Sturtevant Separators in all types of industry.

Look into the profit-making advantages of other Sturtevant equipment . . . blenders, grinders, crushers, screens, pulverizers and elevators. All are designed to increase production and cut costs. Write for complete information and catalog, today.

STURTEVANT MILL COMPANY

119 Clayton Street, Boston 22, Mass.

Designers and Manufacturers of
CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS • ELEVATORS •
LABORATORY EQUIPMENT • MECHANICAL DENS AND
EXCAVATORS • MIXERS



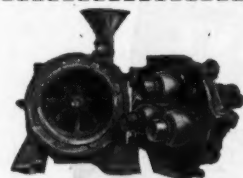
SWING-SLEDGE MILLS

for coarse and medium reduction (1" to 20 mesh). Open door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



JAW CRUSHERS

for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Can and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.



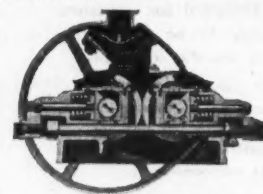
RING-ROLL MILLS

for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



MOTO-VIBRO SCREENS

screen anything screenable. Classified vibrations. Unit construction — any capacity. Open door accessibility. Open and closed models with or without feeders. Many types and sizes — range of work 1/2 inch to 60 mesh.



CRUSHING ROLLS

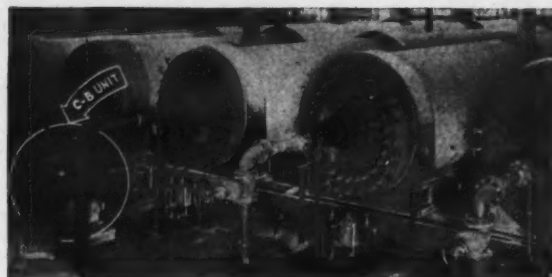
for granulation, coarse or fine, hard or soft materials. Automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8x5 to 38x20. The standard for abrasives.



ROTARY FINE CRUSHERS

for intermediate and fine reduction (1" to 1/4"). Open door accessibility. Soft or moderately hard materials. Efficient granulators. Excellent preliminary Crushers preceding Pulverizers.

When inquiring check CP 5631 on handy form, pgs. 2-3



C-B installation on steam tube dryers in citrus waste drying process.

Reclaiming Waste With FASTER HEAT

Industrial waste which once cost (and still does in many plants) hundreds of thousands of dollars a year for removal, now represents a new source of income with yearly profits in the millions.

DRYING EQUIPMENT ESSENTIAL

Most of the reclamation processes, such as reclaiming distillery refuse for cattle food, turning mill plant residue into vitamin products, citrus fruit peel into cattle feed and citrus molasses, etc., require steam drying ap-

paratus. Operations can be speeded up, uniform control established and fuel saved by the use of the C-B System of Condensate Return.

C-B SYSTEM SPEEDS

DRYING — SAVES FUEL

This removes accumulated condensate under suction before it can cool the dryers and returns it in a closed circuit under high pressure and temperature direct to boilers. Faster heat, more uniform heat, increased production and extraordinary fuel savings are the result.

Write for a copy of Publication 3250.

COCHRANE CORPORATION, 3162 N. 17th Street, Phila. 32, Pa.

COCHRANE CONDENSATE C-B BOOSTER SYSTEM

OF HIGH PRESSURE, HIGH TEMPERATURE CONDENSATE RETURN
When inquiring check CP 5632 on handy form, pgs. 2-3



KEWAUNEE N-15 CHEMISTRY DESK

Like all Kewaunee Laboratory Furniture, the N-15 gives you custom quality at ready-built prices! Designed for efficiency and streamlined appearance. Engineered to be thoroughly practical. Built to stand up under hard use, day after day.

N-15 CHEMISTRY DESK—Length: 12' plus Sink; Width: 54"; Height: 36"; Made of selected hard wood, finished in Median Brown. Top of Kewaunee's KemROCK. Complete with 5 water outlets, 8 gas cocks, 8 air outlets, sink, trap, and lead lined trough. Locks on all drawers and cupboards.

Your inquiry is invited. WRITE—INDUSTRIAL DIVISION

Several other designs also available for immediate shipment.

Kewaunee Mfg. Co.

C. G. Campbell, President

5011 S. CENTER STREET, ADRIAN, MICH.

Representatives in Principal Cities

When inquiring check CP 5633 on handy form, pgs. 2-3

Ideas

Ease of Installing Fiberglas Saves Times in Insulating Tanks

Fiberglas board aids in keeping lubricant additive chemicals at room temperature



Applying roofing cement over insulation

In insulating large chemical tanks, installation time and costs are cut by using asphalt-enclosed Fiberglas board. This material was used on six large tanks at the Lubrizol Corp., Wickliffe, Ohio, one of which is shown in the accompanying illustration. The tanks are used to store, at approximately room temperature, chemical used in the manufacture of addition agents for lubricants. A small heating unit is placed at the bottom of each tank.

The Fiberglas board, with a density of six pounds per cubic foot, one and one-half inches thick, is set against the bare tank and held in place with metal strips. Cracks are filled with roofing cement, after which a coating of roofing cement is applied over the entire surface. (See picture). Over this is laid one ply of asphalt roofing paper. A final coat of cement finishes the application. (Owens-Corning Fiberglas Corp., Toledo 1, Ohio.)

Electric Eye Technique Detects, Measures Traces of Arsenic

*Simple, accurate method applicable to
foods, drugs and alloys*

A new electric eye technique detects and measures traces of arsenic in foods, drugs, alloys. A hundredth of 1 % of arsenic impurity impairs the ability of copper wire to conduct electricity. Also, small traces in ores poison metals.

The new technique is simple and applicable to small samples. It gives accurate results in routine analysis. Such data can be employed widely to assure the uniformity and purity of products in which arsenic may be either harmful or beneficial.

Two chemical steps free the arsenic from the material being analyzed and convert it to a blue-colored compound. Measurement of the intensity of the color with an electric eye, or photoelectric colorimeter, indicates the amount of arsenic present. Besides application to copper and copper-base alloys the technique is applied to the analysis of tin-base and lead-base alloys and to open hearth iron with

DAVIS SOLENOID VALVES for —Steam, Air, Water, Oil

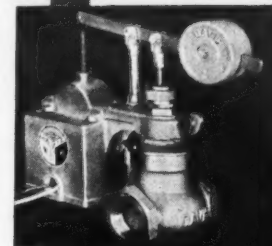
Applications,

Extreme Accuracy

Sizes 1/2" to 12"

Pressures to
1500 Lbs.

Davis No. 93 single-seated, pilot operated solenoid valve. Sizes 1/2" to 4" for gas, steam, or liquid service.



Davis Solenoid Valves are operated by any device that will make or break an electrical circuit, and are furnished either normally open or normally closed—explosion proof if desired.

Davis valves adapted to solenoid operation include: single seated valves for high or low pressure, balanced valves, butterfly valves, and 3 or 4-way pilot valves. Reciprocating or rotary steam type. For extreme accuracy, the Davis Two-Step Solenoid Valve is available.

Write today for details



DAVIS REGULATOR COMPANY

2562 SOUTH WASHTENAW AVENUE, CHICAGO 8, ILL.

When inquiring check CP 5634 on handy form, pgs. 2-3

Accurate

STOP WATCHES

For unfailing accuracy in timing you can rely on Clebar precision timers. They have proved their dependability in many leading laboratories and industrial plants.

CLEBAR TIMERS MEET THE REQUIREMENTS OF THE NATIONAL BUREAU OF STANDARDS STOP WATCH PRECISION TEST.

No. 390 Clebar
1/10 Second Timer

1/10 second, 15 minute register; large hand makes one revolution in 30 seconds. Start, stop, start again from crown; push button returns to zero. 7 jewel non-magnetic movement, nickel chrome case. Each\$19.50

No. 654 Clebar Timer (not illustrated)
1/3 second, 30 minute register. Start, stop, start again, from crown; push button returns to zero. Nickel chrome case, 7 jewel non-magnetic movement. Each\$18.50

EVERY CLEBAR TIMER IS ELECTRONICALLY SET, RIGIDLY TESTED, AND GUARANTEED FOR ONE YEAR.

If interested in other models, send for Illustrated Catalog CP

CLEBAR WATCH CO., INC.

551 FIFTH AVE.

NEW YORK 17, N. Y.

When inquiring check CP 5635 on handy form, pgs. 2-3

good results. It is believed that it can be applied successfully to the analysis of many other metallurgical products as well, and also to other materials including pharmaceuticals, insecticides, pigments and foods, provided a sample containing a minimum of a ten-thousandth of a gram of arsenic is of a size convenient for handling.

The sample is treated with hypophosphorous and hydrochloric acids to liberate the arsenic in the form of a pure metallic powder, which is then redissolved and combined with a chemical containing the metal molybdenum. The union of molybdenum and arsenic form a compound with a deep blue color, the more arsenic, the deeper the color. None of the individual steps involved in the technique is new but they have never before been combined. (From report of O. P. Case, American Brass Co., Waterbury, Conn., before third annual Pittsburgh Analytical Symposium, sponsored by the American Chemical Society.)

Filter Pulp Ash Content Reduced, Maintained at Minimum of 1/100 %

*New uses suggested such as adsorbent in
adsorption columns*

During 1947 many analytical laboratories in this country expressed great interest in securing a dry-dispersed, ash-free, analytical filter pulp. After considerable experiment on the part of Carl Schleicher & Schuell Co., New York, one was finally developed which did not disintegrate the cellulose. Also which avoided contact with metallic surfaces, so that the ash content could be reduced to and maintained at a minimum, and which produced the pulp at a pH value of not below 6.

The outcome of this research is an ash-free, dry-dispersed, analytical filter pulp. Very recent work in partition chromatography suggests a completely new use for such dry-dispersed, ash-free filter pulp, as adsorbent in the adsorption columns. Its application permits the separation of similar compounds of biological origin (amino acids, pigments, etc.). Work in this country has only recently begun along these lines. So far, the results are promising, and it is possible that filter pulp of such high uniformity and purity as No. 289 may lead to progress in adsorption analysis, just as the very pure grades of ash-free filter papers have already led to an important advance in the art of chromatography.

No. 289 ash-free, dry-dispersed analytical filter pulp: ash content — 1 gram of this dry pulp contains less than 0.1 milligram of ash. It is suitable for the most exacting requirements of gravimetric analysis.

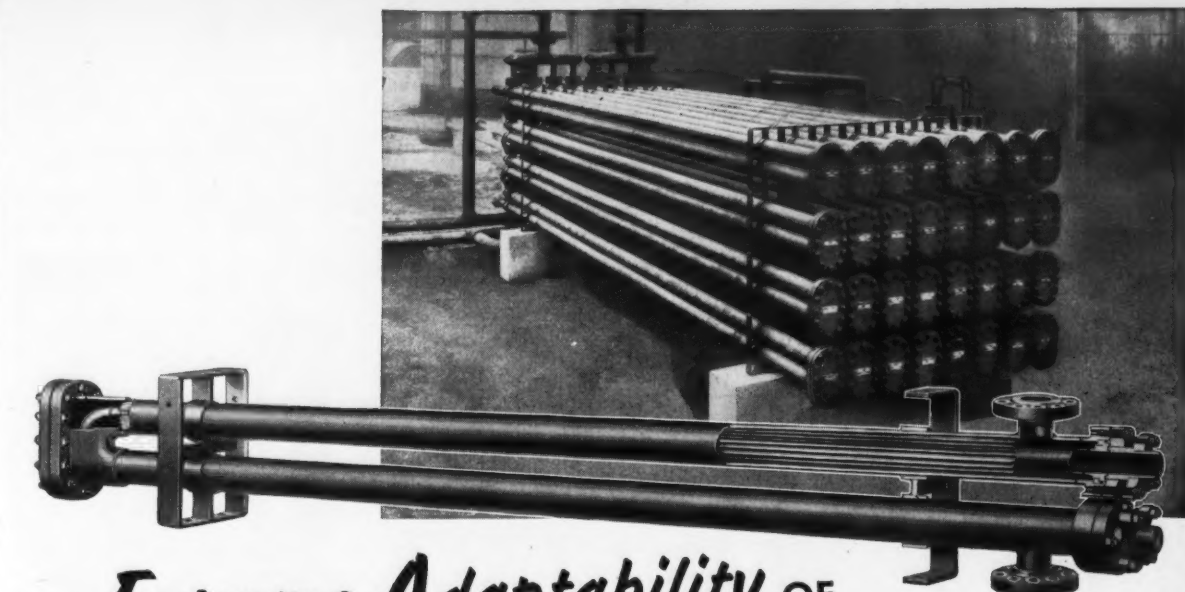
(Carl Schleicher & Schuell Co., 116 W. 14th St., New York 11, N. Y.)

4-1/2 x 5" Booklet Presents Picture-Story of Wire Rope Manufacture

Various processes of manufacturing wire rope from wire rods through wire and rope mills are revealed, in strip film style, with brief captions, in a 56-page, 4 1/2 x 5" booklet. Includes step-by-step views, close-ups and cross-sectional diagrams.

Booklet 48-1, issued by Macwhyte Company, Dept. CP, Kenosha, Wis. When inquiring, specify CP 5636 on handy form, pages 2 and 3.

JUNE, 1948



THE *Extreme Adaptability* OF

BROWN FINTUBE SECTIONAL HAIRPIN HEAT EXCHANGERS

*Enables users to keep production
abreast of changing market and
seasonal conditions*

ADVANTAGES BROWN FINTUBE Sectional Hairpin HEAT EXCHANGERS

1. Flanged Shell Seal and Flanged Union Head End Assembly.
2. Extreme Adaptability to Meet the Requirements of Changed Duties.
3. No Obsolescence.
4. Easy Inspection and Maintenance.
5. Continuous Operation. No Shut Downs for Servicing.
6. Minimum Investment in Replacement Parts.
7. The Brown Resistance Welded Integrally Bonded Fintube.
8. Easily Removed Rear End Cover Plate.

Write today for
Bulletin No. 481.
It gives full details



● Unlike "bundle" type exchangers, which are custom built for a definite and fixed duty, Brown Fintube Sectional Hairpin Heat Exchangers give operating men almost unlimited flexibility to meet changing requirements. The capacity of the bank can be increased by adding additional sections to the original installation. Capacity can be decreased by valving off one or more of the parallel streams,—or reducing the number of sections in each stream. The entire bank can be changed from one duty, to another and totally different duty, by remanifolding the sections in different series-parallel arrangement. And the bank can even be disassembled, and the sections then reassembled as two or more smaller exchangers on different duties, in different plants.

Let us help you in adapting Brown Fintube Sectional Hairpin Heat Exchangers—with their many outstanding operating and maintenance advantages—to your next heat transfer requirement. The Brown Fintube Co., Elyria, Ohio. Sales engineers in the principal cities.

BROWN FINTUBE *Sectional Hairpin* HEAT EXCHANGERS

RESISTANCE WELDED INTEGRALLY BONDED FINTUBES AND FINTUBE HEAT TRANSFER PRODUCTS

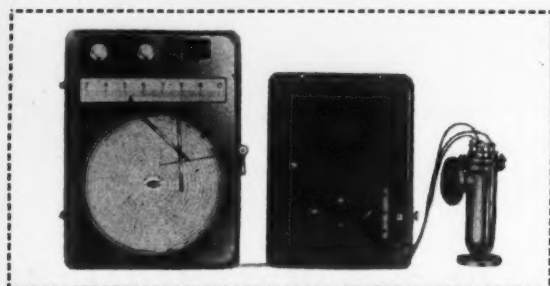
When inquiring check CP 5637 on handy form, pgs. 2-3

A CCURATE pH CONTROL

... Automatically

If your product or process requires control of pH, you get improved quality . . . greater uniformity . . . lower processing costs. Proper pH control also minimizes corrosion, decreases maintenance costs and eliminates water pollution resulting from plant wastes.

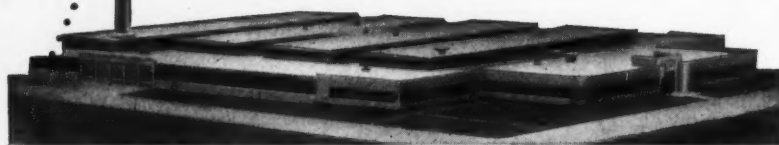
Bristol Continuous Recorders and Controllers make sure that you keep pH exactly where you want it. Hundreds of successful installations now in use. Write for Bulletin pH 1302. THE BRISTOL COMPANY, 141 Bristol Rd., Waterbury 91, Conn.



THE BRISTOL COMPANY
141 Bristol Road, Waterbury 91, Connecticut

When inquiring check CP 5638 on handy form, pgs. 2-3

NOW A NEW, MODERN PLANT



... to give you still better pressure gauges and dial thermometers

A growing volume of production—the reward for making ever-better instruments—has called for this new Marsh plant near the North edge of Chicago in Skokie, Illinois. Building anew, but with 80 years of precision instrument-making to guide us, we have put into this new plant everything available to heighten the methods and craftsman-

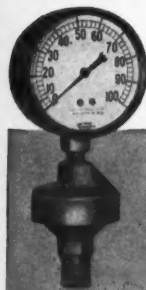
ship that have made Marsh Gauges and Dial Thermometers "The Standard of Accuracy."

Yes, the finest of instruments are being made still better in this new plant. There is a Marsh Gauge or Dial Thermometer for every process. Ask for information covering your particular pressure or temperature problems.

JAS. P. MARSH CORPORATION, Dept. R, Skokie, Illinois

Marsh Diaphragm Gauge — typical of many special types for process plants.

Remote reading dial thermometers and recorders; also rigid stem types, both bourdon tube and bimetallic types.



MARSH
PRESSURE GAUGES
DIAL THERMOMETERS

When inquiring check CP 5639 on handy form, pgs. 2-3

Process Instrumentation

Measures Fineness of Fibers Accurately in 3 Minutes or Less

Accuracy within 0.1 micrograms per inch on cotton fibers; use with synthetic fibers cited

USES — Measures and classifies fineness of synthetic, animal and vegetable fibers.

FEATURES — Measurements are quickly made; manufacturer states that 2 tests per sample can be made in 2-3 minutes, 25-50 samples measured in same time it takes to measure one sample by laboratory methods and equipment. Repetitive accuracy within 0.1 micrograms per inch on cotton, and even higher accuracy on other fibers, is reported.

DESCRIPTION — Principle is that of measuring resistance to flow of air forced through plug of fibers, therefore indirectly measuring degree of fineness. Fine



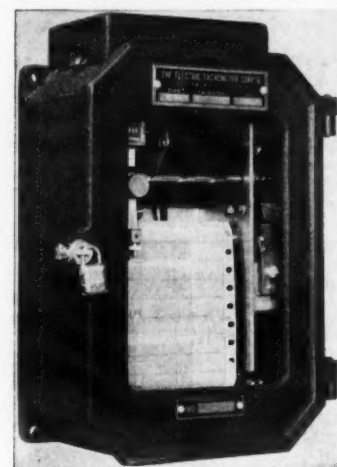
Measures and classifies fineness of fibers by methods and equipment. Repetitive accuracy within 0.1 micrograms per inch on cotton, and even higher accuracy on other fibers, is reported.

fiber stocks offer more numerous air passages, but average opening between fibers is smaller. Therefore resistance to air flow is greater for fine than coarse fibered stock. Direct readings are made from scale calibrated in units standard for fiber being checked. Principle and equipment have been proved on commercial scale.

SOURCE — The Micronaire is a development of The Sheffield Corp., Dept. CP, Dayton 1, Ohio, . . . or for more information check CP 5640 on handy form, pages 2 and 3.

Records Speed of Machine to 1/2% Full-scale Accuracy

Aids in keeping of production records in paper, rubber, cement, steel industries



Speed and production recorder, showing marked chart

USES — Used in paper mills and allied industries to record speed of machine operation in fpm, showing irregularities in speed and idle time of machine. Totalizer gives total production. May be adapted to indicate speed of operation as an aid in controlling caliper of paper.

Has similar uses for recording speed and production of glass-blowing machines, rubber machinery, steel mill, cement mill, other machinery. Used in power stations to record acceleration of generators during warming-up period, from zero to synchronous speed; also speed of pumps, fans, stokers, coal feeders.

FEATURES — Sustained accuracy of 1/2% of full scale, with no calibration necessary; self-contained counter allows checking of accuracy at any time. Equal torque and accuracy for all speeds. Accuracy not affected by temperature or voltage change, wear, vibration. Sturdy steel stylus and writing mechanism. Separate mechanical or electric clock.

Provides permanent record for comparison of runs, analysis of stoppages. Recorder may be installed at any remote position.

DESCRIPTION — Electrically-operated, AC or DC, the recorder consists of a synchronizing contactor which may be attached to, and driven by, the machine whose speed is to be measured. Unique step-by-step motor in recorder is electrically connected to contactor and follows its motion. Motor, by means of gears and feed screw, drives a steel stylus across wax-coated chart.

At half-minute intervals, the master clock makes contact to disengage feed screw which is revolved backward by return spring, restoring pen arm to zero. Same contact

CHEMICAL PROCESSING Preview

feeds chart downward at an inch per hour. This cycle, when repeated, produces a series of parallel lines, length of which is proportional to speed or production. Ends of lines form a speed curve.

Chart is wax-coated and can be furnished to read in any function of speed desired such as fpm, rpm, mph, papers per minute, etc. Counter gives running total or count of output of machine. Counter is geared to register at ratio of 1 to 1, 1 to 10, or 1 to 100, depending on machine speed.

Contactor is usually driven by gear or pulley of machine whose speed is to be measured. Should, if possible, operate at 200 rpm for maximum speed or maximum rate of production to be recorded, but contactors operating at 100, 66-2/3, 50, 40 or 33-1/3 rpm can be supplied when required.

Recorder motor operates on 6-8 volts DC. Rectifier is furnished when AC source of power is used. Rectifier measures 6" x 3 1/2" x 5-7/8", contactor, 5-5/8" x 3-7/16" x 5-3/8", recorder 10-3/8" x 4-3/8" x 6-3/4", electric clock 4-5/16" x 4-5/16" x 3-11/16".

Panel installations are available.

SOURCE — This Model R-300-H recorder is made by the Electric Tachometer Corp., Dept. CP, 22nd and Vine Streets, Philadelphia, Pa. . . or for more information check CP 5641 on handy form, pages 2 and 3.

Compact Galvanometer Has High Sensitivity for Lab, Plant Tests

Period is about 3 seconds; incorporates low sensitivity feature for initial readings



Type E galvanometer

USES — Laboratory and other testing work. Suitable for many potentiometer and bridge circuits which formerly required galvanometers having separate reading device.

FEATURES — Ample high sensitivity for most testing work. Has arrangement which, in effect, provides low sensitivity in the initial measuring stages. Period is only 3 seconds. Complete galvanometer and additional moving system form

several instruments of different characteristics. Systems are easily interchanged and all use same magnet. Compact.

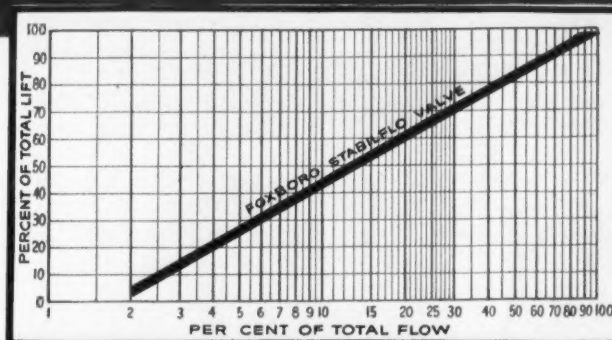
DESCRIPTION — Moving system, magnet, lamp, scale and lamp transformer are all in single case. Setting on table, plugging into 115 volts, 60 or 50 cycle outlet ready for use. Scale has 50 1-mm divisions on either side of zero. Deflection is linear within 1%. Zero is adjusted by turning knob on front. Sturdy case acts as electrical shield.

Available sensitivities are 0.5 microvolt, 0.005, 0.0005 microampere per mm. The added low sensitivity is obtained by following method: if deflection shoots galvanometer's indicating light-spot off scale, secondary spot appears; moving only 1/10 as far as main spot, secondary spot shows direction of deflection and approximate magnitude of circuit-balancing adjustments.

SOURCE — The Type E galvanometer is manufactured by the Leeds & Northrup Company, Dept. CP, 4943 Stenton Ave., Philadelphia 44, Pa. . . or for more information check CP 5642 on handy form, pages 2 and 3.

JUNE, 1948

Only Stabilflo Valves will give you this remarkable performance



... straight line performance that responds perfectly to every impulse of your controller.

Perfect teamwork between valve and control instrument is assured when you use a Foxboro Stabilflo Valve with your Foxboro Controller. That's because this set-up gives you an unequalled combination of optimum flow characteristics and free-floating mechanical design.

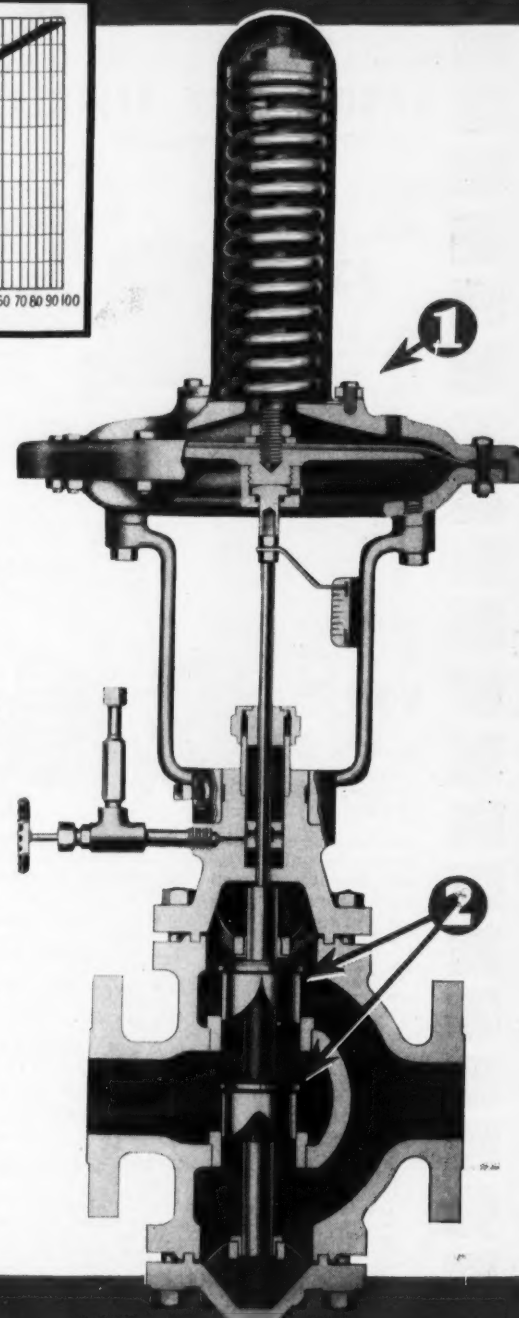
This coordinated unified engineering achievement is the result of two major Foxboro developments in valve design:

THE INVERTED TYPE MOTOR ... By reversing the usual position of diaphragm and spring, Foxboro engineers practically eliminate all sources of friction in the action of the motor. Anti-friction bearings are unnecessary. The suspended construction of the valve motor requires no guides. A special flexible coupling between the valve stem and the diaphragm motor allows the stem to establish normal alignment.

This self-aligning motor with its floating action is an exclusive feature of Foxboro Stabilflo Valves.

WIDE RANGE V-PORT VALVES ... This outstanding development corrects the common faults of control valves of conventional types. Almost any kind of port opening can produce equal percentage flow changes within a limited range, but Foxboro's WIDE RANGE V-PORT VALVE extends the limits to the full stroke of the motor. The greater the rangeability possessed by a valve, the greater its ability to handle unusual conditions. Hence, its 50 to 1 rangeability means that the Stabilflo Valve insures satisfactory control at all demands.

Since the success of any control system may depend as much on the performance of the valve as on the control instrument, it will pay you to investigate the advantages of Stabilflo Valves. Write for complete information. The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U. S. A. Branches in principal cities.



FOXBORO

REG. U. S. PAT. OFF.

AUTOMATIC CONTROL VALVES

When inquiring check CP 5643 on handy form, pgs. 2-3

**A RECOGNIZED SOURCE
FOR ALL
LABORATORY SUPPLIES**

From our versatile line of high quality
LABORATORY STIRRERS
with COMPLETE Speed Control

DIRECT DRIVE STIRRER

Model 7605E

\$38.75

Write for
Descriptive
Bulletin
5404W



One of the most powerful laboratory stirrers available — a sturdy, direct drive stirrer offering the power and stamina necessary for the heavier stirring applications. Can be used for many semi-industrial jobs.

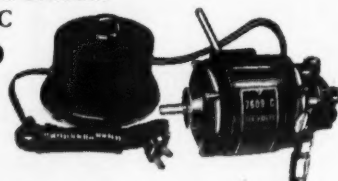
- 1/2 HP motor.
- Table-top speed control rheostat.
- 0 to 5000 RPM.
- 5/16" true running chuck.
- Continuous duty.
- Stainless steel mounting rod.
- Used with any laboratory support.
- 110 volts, AC-DC.

GEAR DRIVE STIRRER

Model 7609C

\$59.00

Write for
Descriptive
Bulletin
4404W



The heaviest gear drive stirrer of the Palo line, incorporating all the features of power, ruggedness and durability — with the addition of reduction gears, giving high torque at low speeds.

- 1/18 HP motor.
- Table-top speed control rheostat.
- High speed shaft to 5000 RPM.
- Low speed shaft to 833 RPM with a maximum torque of 3.0 in. lbs.
- 5/16" true running chuck.
- Stainless steel mounting rod.
- Can be used with any laboratory support.
- 110 volts, AC-DC.

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OR WRITE DIRECTLY TO US

APPARATUS TO MEET ASTM, AOAC, API, ETC.,
SPECIFICATIONS. COMPLETE STOCK OF LAB-
ORATORY REAGENTS

Pyrex Glassware
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meters
Ovens and Sterilizers
Water Baths
Microscopes and Acces-
sories
Water Stills
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OUR NEW CATALOG-DIGEST IS NOW READY.

Write for your copy today!

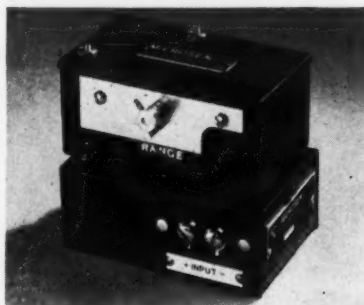
PAIO-MYERS INC.

81 READE STREET NEW YORK 7, N.Y.

Process Instrumentation

**Offers 5 Milliampere Output for
2 Micro-ampere Input Change**

*Input signal applications of micro-sensitive relay
include thermocouple potentials, etc.*



Micro-sensitive relay

photocell, ionization gauge, resistance bridge unbalance, including Pirani gauge, strain gauge, gas detection measurements.

DESCRIPTION — Utilizes "Microsen Balance" principle, providing full output changes of 5 milliamperes for a 2 micro-ampere input change. Equipped with mechanical range adjustment for setting operating point at desired input level. Model 143-X. An addition to manufacturer's line of DC amplifiers.

SOURCE — Manning, Maxwell & Moore, Inc., Dept. CP, Bridgeport 2, Conn., is the maker, . . . or for more information check CP 5645 on handy form, pages 2 and 3.

**Electronic Relay Control Used
in Wide Range of Applications**

*Greater sensitivity is claimed; probe to relay
distance can be 3 to 5 times longer*



Electronic relay control

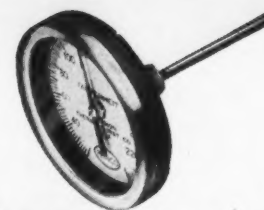
preciable heating, arcing, ionization or chemical change. Manufacturer points out that probe to relay distances

USES — Micro-sensitive relay designed particularly for use as a component of other electronic or electromechanical apparatus.

Typical input signal applications are thermocouple potentials, barrier layer

USES — Used to aid in control and alarm of liquid level and interface, pressure and flow, temperature, high foam and other conditions found in the chemical, power, textile and paper processing industries.

FEATURES — Greater sensitivity is claimed for relay. Actuating circuit is approximately 1 billionth of a horsepower, causing no ap-



**PRINCO "EASY-SETTING"
DIAL THERMOMETERS**

- 5 Standard Ranges — Fahrenheit or Centigrade
- "Easy-Access" Cases for Quick Setting
- Simplified Dial and Pointer Adjustment
- Rugged, Accurate, Bimetallic Unit

"Easy-Access" cases permit all adjustments to be made from the front, "on the job"!

Two case types: "Quick-Opening," with threaded frame; "Moisture-Proof," with bolted frame.

4" dial. 5 standard ranges, Fahrenheit or equivalent Centigrade, covering —100° to +850° F., or —75° to +450° C.

Stainless Steel stem in 4 standard lengths: 4", 6", 9" and 12". Separable sockets available. Write for illustrated folder.

PRECISION THERMOMETER & INSTRUMENT CO.

INSTRUMENTS **PRINCO** FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.

In Canada: PEACOCK BROTHERS Limited

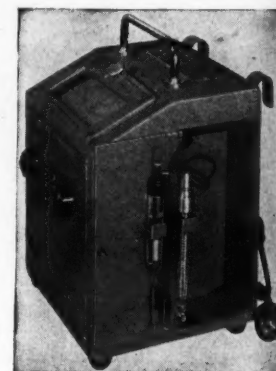
When inquiring check CP 5646 on handy form, pgs. 2-3

**NEW
CAMBRIDGE**

INDUSTRIAL MODEL

DIRECT READING

pH METER



- Operated from any AC outlet.
- Completely portable. Weighs only 10 lbs. Electrodes are integral parts of the instrument.
- Accurate to .10 pH.
- Shielded glass electrodes permit use of electrodes at any distance from the instrument.
- May be used on a bench or wall mounted.

- Self contained in one metal case including electrodes and buffer solutions.

- Extremely stable.

- Automatic temperature compensation.

Send for bulletin 910 I

Also available: Electron-Ray Research Model accurate to .02 pH and Laboratory Model accurate to .05 pH and Single- and Multi-point recorders.

CAMBRIDGE INSTRUMENT CO., INC.

3706 GRAND CENTRAL TERMINAL NEW YORK 17, N.Y.

Pioneer Manufacturers of

PRECISION INSTRUMENTS

When inquiring check CP 5647 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

When inquiring check CP 5644 on handy form, pgs. 2-3

Process Instrumentation

can be 3 to 5 times longer than usual. Long, trouble-free life and low maintenance.

DESCRIPTION — Circuit is of positive-acting thyatron type, with tube current limited to 1/3 of its maximum value. Two models cover range of 20 ohms to above 20 megohms. Continuously-variable sensitivity gives 2 to 1 discrimination over full range. Circuit is stable over wide range of voltage fluctuations. Double pole, double throw action with heavy contacts; actuates up to a 1/2 hp motor. Direct and reverse-acting units are available.

Construction is in accordance with NEMA standards, with low-voltage (6 volts) control circuit completely isolated from line.

SOURCE — R-S Products Corporation, Dept. CP, Philadelphia, Pa., . . . or for more information check CP 5648 on handy form, pages 2 and 3.

Portable Kit Makes Combustion Tests Easy

Kit contains CO₂ indicator, draft gauge, and stack thermometer; entire test requires 40 seconds



Combustion testing kit.

plunging hose is then released, unit is turned bottom-side up and back again to mix the gas sample with CO₂ absorbing fluid contained in the bottom of the instrument. Absorption of CO₂ draws the absorbing fluid indicates the percentage of CO₂ which is read from the scale at the right side of the center tube.

Draft gauge is available in three standard ranges: 0.25" up drafts to 0.05" down draft, 0 to 1.0" water draft, and 0 to 25 millimeters water. Gauge is supplied with nine feet of rubber tubing.

Range of the stack thermometer is 100° to 950° F. in 10° divisions. Dial case is sealed against dust and moisture. Slip-on handle permits the hand to be kept at a safe distance from the hot flue pipe.

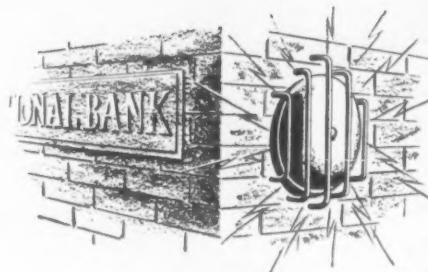
A combustion efficiency finder is included in the kit. By setting CO₂ and stack temperature readings on this slide rule, heating efficiency and stack loss can be read off instantly, without any calculations. Bulletin 733 describes the equipment.

SOURCE — Manufactured by The Bacharach Industrial Instrument Company, Dept. CP, 7000 Bennett St., Pittsburgh, Pa., . . . or for more information check CP 5649 on handy form, pages 2 and 3.

JUNE, 1948

on a "reason why"

sounds off



...when things go wrong

A burglar alarm sounds off...

Gives warning when things go wrong.

An ∇ Flow Alarm Rotameter...

Gives warning, too...

Announces a flaw in the flow...

Of a process fluid.

Maximum and minimum flow are set...

At predetermined rates...

By the positioning of two solenoids.

A rod on the rotor...

Has a soft iron tip...

Which induces a current...

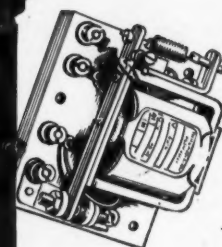
And operates a relay...

To sound an alarm...

When passing through either solenoid

Let this unit sound off for you...

Send for Bulletin 18-R, today.



Visit the Third National Instrument Exhibit, Convention Hall, Philadelphia, Pa., September 13-17, 1948. See our display in Booth 203 & 205.

SCHUTTE & KOERTING COMPANY

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS • RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS

When inquiring check CP 5650 on handy form, pgs. 2-3



BUILDERS Shuntflo Steam Meter eliminates guesswork . . . shows

exactly how much steam is used by individual departments, tenants or processes. All flow is metered — open end steam lines, unrecovered flow and heavy overloads. The Shuntflo is entirely self-contained and reads directly in pounds of steam or cubic feet of air or gas, without the use of electricity, mercury or clocks. The meter is low in cost and installs in any line up to 12" as easily as a valve. For complete information and Bulletin 349, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Coddling Street, Providence 1, Rhode Island.

BUILDERS PRODUCTS

Venturi, Propelloflo and Orifice Meters • Type M, Flo-Watch and Flo-Gage Instruments • Shuntflo Steam Meters • Kennison Nozzles • Chronoflo Telemeters • Conveyoflo Meters.

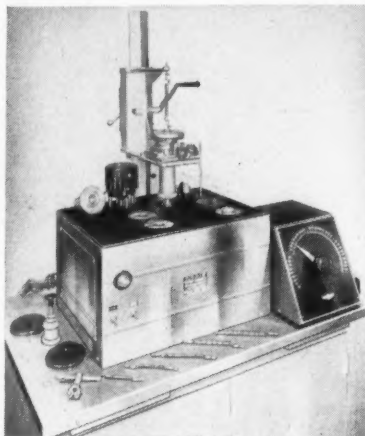
BUILDERS PROVIDENCE
Instruments

When inquiring check CP 5651 on handy form, pgs. 2-3

Process Instrumentation

Produces Consistency Curves for Paints, Plastics, Adhesives

Curves useful for calculating breakdown, flow properties of thixotropics



Interchemical rotational viscometer

USES — Measures flow properties of paints, printing inks, plastics, adhesives, similar materials. Measures break-down of thixotropic materials, and Newtonian and plastic viscosities.

FEATURES — Produces consistency curves in place of single-point measurements which are often misleading for plastic-thixotropic materials.

DESCRIPTION — Consists essentially of rotating cup containing sample to be measured, and stationary bob immersed in it. When cup is rotated at predetermined speeds, a viscous drag is imposed on bob, which twists coiled spring attached to bob. The spring movement angle is measured on graduated disk. Speed of rotation may be varied from 10 to 400 rpm, in steps of 10 rpm, using General Electric Thy-Mo-Trol drive.

Consistency curve is obtained by changing speeds over series of steps from low to high and back again, noting deflections on graduated disk. 40 changes in speed are possible in 3 minutes. Breakdown of thixotropic materials is measured from the hysteresis loop formed by plotting together the up and down-curves.

Calculations using either the area of loop or 2 down-curves, each at different top speeds, give magnitude of breakdown. From down-curves, Newtonian and plastic viscosities in range of 1 to 2500 poises and yield values up to 18,000 dynes/cm² may be determined.

Bob shaft is positioned by ball bearings which reduce friction, keep bob in alignment and prevent pendulum motion common in bobs suspended by torsion wire. Constant-temperature water bath provides control from 20° to 100°C, with sensitivity of 0.1°C.

SOURCE — The Interchemical rotational viscometer was developed, in cooperation with the Interchemical Corporation, by the Precision Scientific Company, Dept. CP, 3737 W. Cortland St., Chicago 47, Ill. . . . or for more information check CP 5652 on handy form, pages 2 and 3.

Controls Time Schedule of Process Temperature, Pressure

Economical unit acts in conjunction with installed air-operated, semi-automatic controls

USES — Acts with air-operated, semi-automatic controllers to control temperature and pressure according to pre-

ACCURATE TEMPERATURE INDICATION

Model F-1 Thermometer priced from \$22.

Temperature indication is provided economically for chemical processing with the Auto-Lite Indicating Thermometer shown above. Dial head can be mounted where temperature observation is most convenient. Other styles and types available.

Write for catalog.

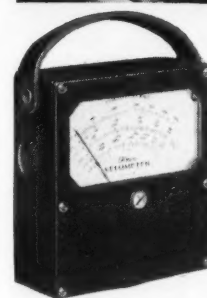
THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION • TOLEDO 1, OHIO
New York: Chrysler Bldg. • Chicago: 600 S. Michigan Blvd.

AUTO-LITE
THERMOMETERS

When inquiring check CP 5653 on handy form, pgs. 2-3



INSTANT DIRECT READING OF AIR VELOCITIES ANYWHERE!



THE ALNOR Velometer!

More inspectors, maintenance men, superintendents and technicians have turned to the Alnor Velometer for checking air flow conditions—in machines, plants, mines, mills, etc. The Velometer is the only instantaneous direct-reading air velocity meter—

accurate in all ranges, from high to low—compact, portable, easy to understand and use. A true precision Alnor instrument, the Velometer is built for hard industrial usage. For your air measurement needs, try a Velometer—you'll be glad you did. Send today: Ask for bulletin 2448-G. Illinois Testing Laboratories, Inc. Rm. 504, 420 N. La Salle St., Chicago 10, Ill.

Alnor

PRECISION INSTRUMENTS FOR EVERY INDUSTRY

When inquiring check CP 5654 on handy form, pgs. 2-3

Process Instrumentation

set time schedules in the rubber, chemical, plastics, other industries.

FEATURES — Fully-automatic time schedule control is made possible, at relatively low cost, using presently-installed equipment.

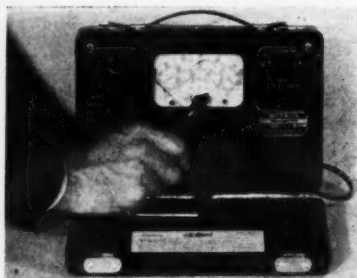
DESCRIPTION — Operation begins by pressing starter push-button on timer. Signal light above button flashes on to indicate process is under way. By means of adjustable cam, timing begins immediately or, if desired, when temperature has reached processing point. This temperature is maintained for predetermined length of time.

All valves — steam, air, drain, overflow and cooling water — are operated as process may require, and all manual adjustments by operator are eliminated. At completion of process, signal light is extinguished, indicating cycle has been completed.

SOURCE — C. J. Tagliabue Corp., Dept. CP, 614 Frelinghuysen Ave., Newark 5, N. J., is the maker. . . or for more information check CP 5655 on handy form, pages 2 and 3.

Measures Rotational Speeds to 1/4% Accuracy

Two models cover 90 to 10,000 rpm; higher, lower speeds measured with adapters



Tachometer rotary switch allows choice of ten speed ranges

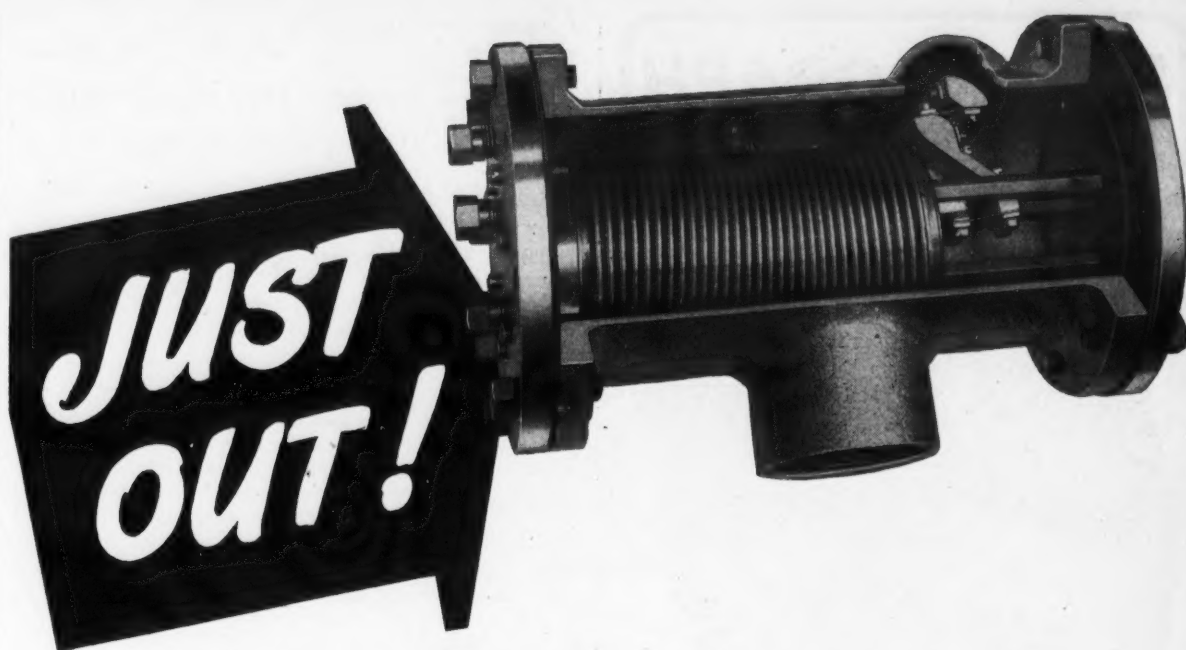
USES — Measures speeds of rotation in laboratory, test stand, general applications.

FEATURES — Accurate to 1/4% of speed being measured. Self-calibrating against built-in standard resistors. Extremely low torque for low-powered devices. Covers wide speed range with ten overlapping ranges; no harm done by accidentally selecting wrong range. Small, light, portable. Permanently lubricated; all parts sturdy and long-lived.

DESCRIPTION — Two types available, identical except for speed ranges: Type 48H, for 900 to 10,000 rpm; Type 48J, for 90 to 1000 rpm. Each have ten overlapping ranges selected by rotary switch. Each unit measures 4" x 6 1/4" x 10 1/4"; net weight, 6 lb.; 115 volts AC, 5 watts. Torque of 48H is 1/20 ounce-inch. Torque of 48J is 1/8 ounce-inch.

The tachometer employs electrical bridge circuit principle, self-calibrating. When calibrating, sensitive speed-measuring circuit is matched against internal precision resistors, thus insuring readings against ambient temperature changes. Can be used with manufacturer's Type 46 high and low-speed adapters to shift measuring ranges up or down from normal ranges by factor of 10. Tachometer head has only one rotating part. No vacuum tubes used.

SOURCE — This precision tachometer is a product of the Metron Instrument Company, Dept. CP, 432 Lincoln Street, Denver 9, Colo. . . or for more information check CP 5656 on handy form, pages 2 and 3.



Taylor's ALL 316 STAINLESS STEEL Aneroid Manometer

HERE it is—the famous Taylor Aneroid Manometer—now available in all 316 stainless steel to handle tough corrosives like nitric acid, acetic acid, sulphuric acid, phosphoric acid, caustics. Measures flow, level, or specific gravity. Has all the advantages of the previous model which is still standard for ordinary jobs.

The Taylor Aneroid Manometer has been thoroughly field-tested in wartime chemical and petroleum plants where it earned a proud record for cutting maintenance costs to a minimum. No mercury to replace. No stuffing box. No internal pivots to wear out. Low volumetric displacement for full range differential. Differential pressure is measured by a bellows and transmitted through a torque tube.

Here are a few money-saving advantages you get with the new all 316 Stainless Steel Aneroid Manometer:

No sealing fluids or blowback systems needed because corrosive fluids can be directly introduced into the manometer.

Entire instrument is tough and dependable for long service.

Easy to clean—no etched surfaces—no pockets.

Range changes easily made by changing torque tube with another of a different range.

Available ranges, 20", 50", 100", and 200" of water differential. Working pressure, 300 psi. Ask your Taylor Field Engineer or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments
— MEAN —
ACCURACY FIRST

IN HOME AND INDUSTRY

When inquiring check CP 5657 on handy form, pgs. 2-3

POLAROGRAPH

SARGENT-HEYROVSKÝ
MODEL XII



Visual deflection and photographic recording for current—permits operator to see actual image of galvanometer deflection on translucent scale as it is being recorded—150 mm current axis—current sensitivity 4×10^{-9} ampere per millimeter (allowing analysis of solutions as dilute as 10^{-6} normal)—sensitivity control is supplied by panel mounted precision Ayrton shunt with ratios from 1/1 to 1/1000—output circuit is equipped with optional Hoekstra shunt connection which provides for plus or minus polarization of the cathode to be represented by voltage axis of single uni-directional record—provision for instant manual adjustment of record position and applied voltage—actual applied voltage readily determinable at all times by multiplying volt meter reading by indicated graduations on camera scale ring—recording system is driven by constant speed motor—all scales and windows are actinic filters and the camera is a "light tight" unit that may be removed from the instrument outside the dark room.

MULTI-CURVE RECORDING—ten position scale ring of camera cylinder permits adjustment of the starting position so that numerous curves can be plotted on a single recording sheet without removing it from the instrument.

SIMPLE DEVELOPING PROCEDURE—low sensitive bromide paper $6" \times 10"$ is used in the camera—no need to meet time temperature and light requirements of ordinary photographic development—no film is used—no printing to be done—minimum dark room requirements.

LIGHT WEIGHT—SMALL SPACE REQUIREMENT—Model XII Polarograph weighs approximately 65 lbs. net—the dimensions are $13\frac{1}{4}" \times 13\frac{1}{2}" \times 12\frac{1}{2}"$, requiring only very small space in the laboratory.

S-29301—Polarograph, Heyrovsky, American model XII Indicating-recording, complete with 3 vessels S-29305 30 mm; 1 electrode S-29340. 21 cm capillary tubing, S-29350 3 stoppers for vessels, 4 packages bromide paper S-29347 3 feet neoprene tubing $\frac{3}{16}$ inch, mercury reservoir 125 ml S-44345 and connecting wires. For operation from 115 volt A.C. 60 cycle circuit **\$550.00**

SARGENT

SCIENTIFIC LABORATORY EQUIPMENT AND CHEMICALS
E. H. SARGENT & COMPANY, 155-165 EAST SUPERIOR ST. - CHICAGO 11, ILL.
MICHIGAN DIVISION 1959 EAST JEFFERSON - DETROIT, MICHIGAN

When inquiring check CP 5658 on handy form, pgs. 2-3

Process Instrumentation

Thermal System Has Small Bulb, Short Capillary Length

Actuated by organic liquid; valuable for low temperatures, mercury sensitive processes

USES—Thermal system particularly for sub-zero temperature measurement where short range intervals are desired, small bulb is required and where manufacturing process is sensitive to mercury.

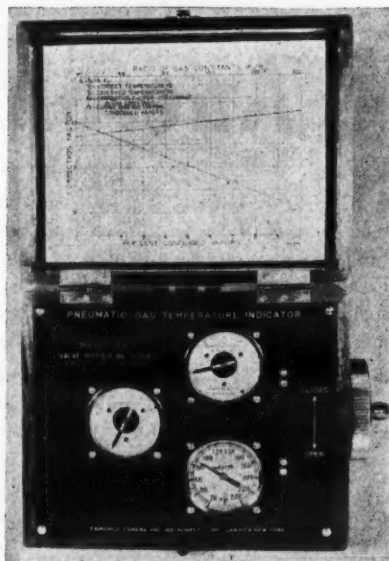
FEATURES—Small bulb using no mercury. Capillary length is short. Good for low temperatures.

DESCRIPTION—System utilizes a single-bore capillary and single Bourdon spring for case temperature changes. System is actuated by organic liquid. Uniform charts are used and system is available with usual fittings, armors, etc., as supplied on other thermal systems.

SOURCE—Made by the Taylor Instrument Companies, Dept. CP, P. O. Box 110, Rochester 1, N. Y. . . or for more information check CP 5659 on handy form, pages 2 and 3.

Indicates Gas Temperatures to 5000° F. Within Plus-minus 2%

Acts similar to gas thermometer; simply operated and constructed



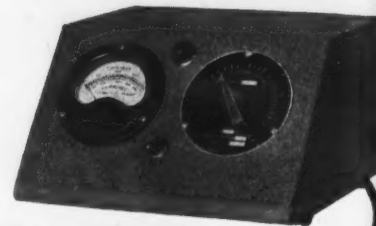
Pneumatic gas temperature indicator including correction chart in cover

USES—Measures gas temperatures up to 5000°F. and, consequently, finds usage with gas turbines, jets, besides applications in industrial laboratories. Unit may be used as temperature-responsive control or temperature-limiting device by incorporation into any specific control system.

FEATURES—1% accuracy to 2000°F.; plus-minus 2% in 2000—5000°F. range. Simply constructed and operated.

DESCRIPTION—Basic pneumatic gas temperature sys-

STOP variations in temperatures due to line voltage fluctuations



with the
NEW

TEMCOMETER

Temperature Controller and Indicator

This new *Temcometer* instrument combines in a single, compact unit an advanced type of input controller and an indicating pyrometer. Unlike other type controllers, the *Temcometer* automatically maintains even temperature regardless of fluctuations in line voltage. A sensitive panel-operated thermostatic switch can be set to regulate current input into the heating equipment anywhere from 5% to 100% time "on".

Originally designed as a built-in feature of Temco electric furnaces, this complete control unit is now made for use with other makes of furnaces and electric heating devices.

Made both with and without pyrometer for maximum loads ranging from 2.3 to 5.7 kw. Priced from \$30.00 to \$57.50.

Write for complete specifications and name of nearest distributor.

478-6 WEST LOCUST ST. DUBUQUE, IOWA

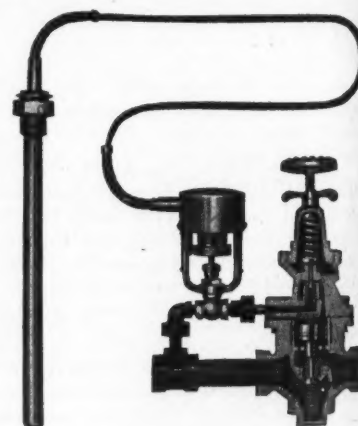
THERMO ELECTRIC MFG. CO.

When inquiring check CP 5660 on handy form, pgs. 2-3

KECKLEY

Type PTT Regulator—with Thermostatically Operated Control Valve is a combined Pressure and Temperature Regulator which not only reduces high initial pressures to any desired reduced pressure but also maintains a definite temperature of the liquid being heated, eliminating the necessity and expense of installing both a Pressure and Temperature Regulator.

STAINLESS
STEEL
RENEWABLE
VALVE
and
SEAT
and
UNIT
PILOT
VALVE.



Write today for Descriptive Bulletin No. 48.

O. C. KECKLEY COMPANY

400 W. MADISON STREET

CHICAGO 6, ILLINOIS

When inquiring check CP 5661 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Process Instrumentation

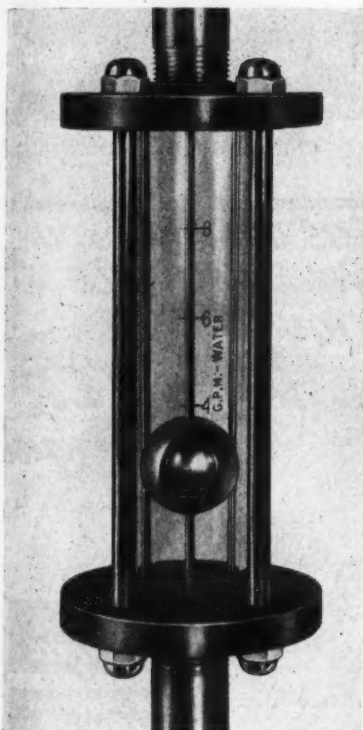
tem is heart of instrument. System is form of gas thermometer and utilizes density of gas being measured as direct indication of temperature. Measurements are made simply by insertion of probe into gas stream and operation of single control valve.

Probes of suitable metals are furnished for temperatures to 2300°F.; water-cooled probes with iridium orifices handle temperatures up to 5000°F. Probe diameter, length and shape are tailored to specifications.

SOURCE — The Unit 263 indicator is a product of the Fairchild Camera & Instrument Corp., H. W. Oetjen, Engine Control Div., Dept. CP, 88-06 Van Wyck Blvd., Jamaica 1, N. Y. . . or for more information check CP 5662 on handy form, pages 2 and 3.

Indicates Flow, Approximate Rate of Flow

0.2 — 60 gpm ball flow indicator can be used with lube oils, most solvents



Ball flow indicator

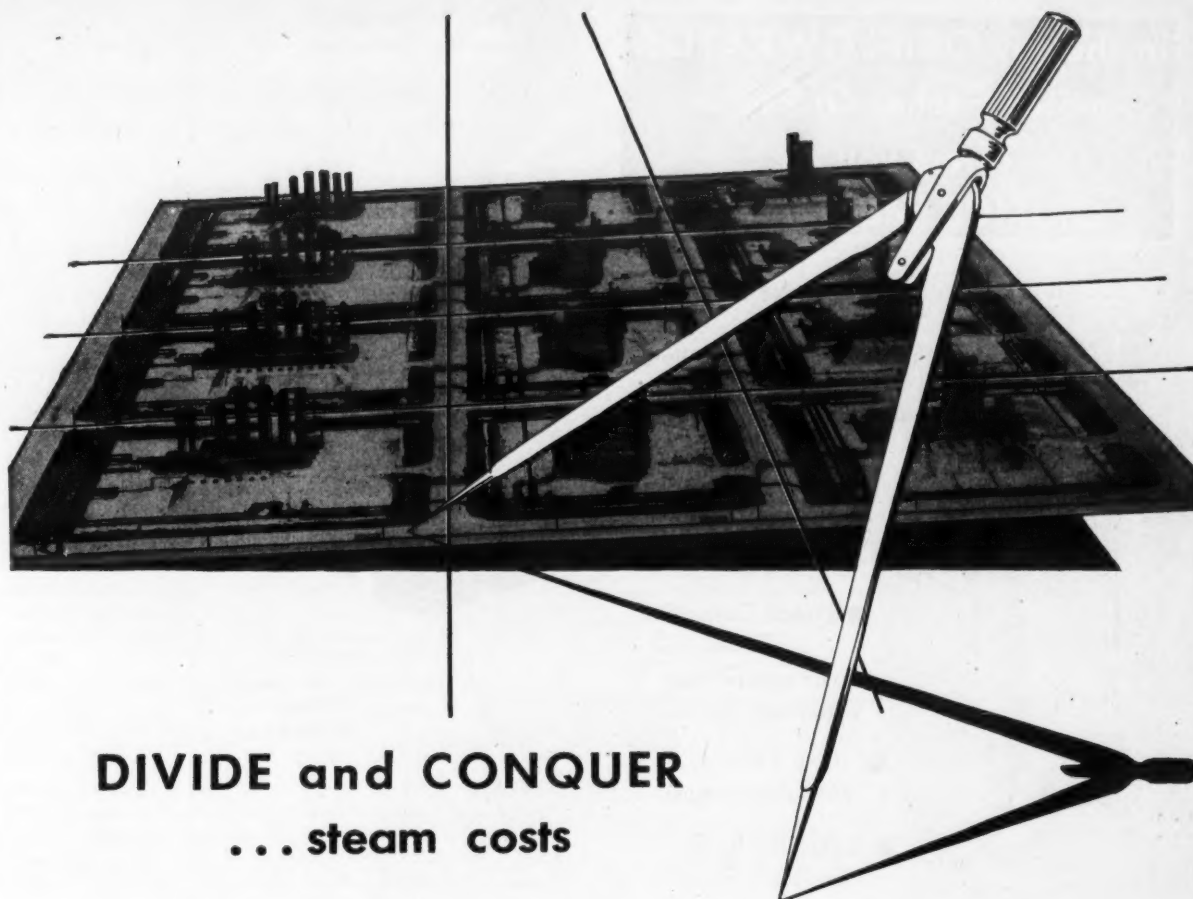
USES — Connected in series with pumps, filters, water treating equipment, bearings and cooling or heating jackets to show progressive wear or clogging of equipment by providing visual indication of flow and measuring approximate flow rate.

FEATURES — May be used with lubricating oils and many solvents.

DESCRIPTION — Consists of tapered glass tube with moving, guided brass ball which acts as flow indicator. Movement of ball is confined to center of tube by slender stainless steel rod. Neoprene gaskets seal tube.

Made in all standard pipe-sizes from 1/4" to 2" for flows of 0.2 gpm. to 60 gpm. Pipe nipple is supplied for ease in handling with pipe wrench when indicator is connected to other equipment.

SOURCE — Development of the Schutte and Koerting Co., Dept. CP, 1254 N. 12th St., Philadelphia 22, Pa. . . or for more information check CP 5663 on handy form, pages 2 and 3.



DIVIDE and CONQUER ... steam costs

Steam costs are hard to tackle on a plant-wide basis. Responsibility is scattered. Efficiency is unmeasured and wastes go on unnoticed.

Hundreds of plants have proven that the first step in tracking down steam wastes is to isolate steam consumption. With the knowledge of how much steam is going to each processing unit or department, inefficiencies become apparent—wastes can be conquered.

Records produced by the Brown Steam Accounting Flow Meter also form the basis for *complete cost accounting*. The Brown System records rate of flow as well as units, and provides a running total of steam consumed.

The *divide and conquer* approach to steam costs has produced sensational economies in some plants; much more than repaid the investment in practically all plants where it has been put into practice. Why not investigate the Brown Steam Accounting System now?

**THE BROWN INSTRUMENT CO., 4421 WAYNE AVE., PHILADELPHIA 44, PA.
DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR CO.**

Offices in principal cities of the United States, Canada and throughout the world



An informative new 32-page booklet entitled "Brown Flow Meters for Cost Accounting" has just been released. A copy will gladly be sent to you. Write for Bulletin No. 2022.

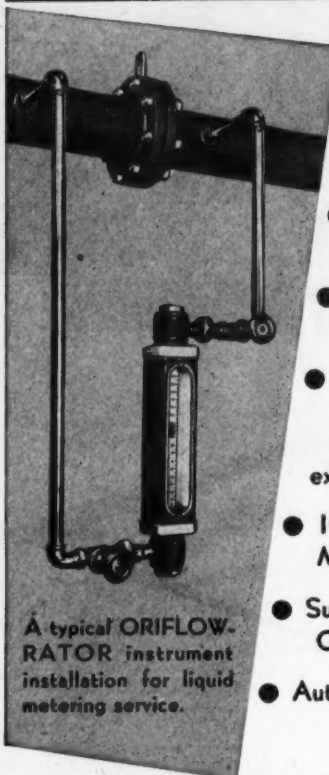
BROWN

Advanced Instrumentation
FOR BETTER PROCESSING

MINNEAPOLIS
Honeywell

When inquiring check CP 5664 on handy form, pgs. 2-3

In the new **ORIFLOWRATOR**
meter Fischer & Porter
offers you an
ORIFICE METER with



- No Mercury!
(or any other
manometer fluid)
- No Seal Pots!
- No Equalizing
Valves!
- No Overload
Problem!
- Linear Calibration
Scale!
(no square root
extraction required)
- 10 to 1 Accurate
Metering Range
- Suitability for any
Corrosive Fluid!
- Automatic Purging of
By-pass Line!

For over 10 years now the FLOWRATOR meter (formerly rotometer) has been handling ever-increasing numbers of fluid metering problems for flows in pipe sizes from $\frac{1}{8}$ " to 4". Now, placed in bypass around a main line orifice the FLOWRATOR meter becomes the ORIFLOWRATOR meter and takes on the accurate wide range metering of any liquid, vapor or gas in any larger pipe size while giving you all the advantages listed above over ordinary "orifice meters". Any pressure, remote instruments actuated electrically or pneumatically, flange taps or vena contracta taps.

WRITE FOR NEW CATALOG 39-C

FISCHER & PORTER CO.
DEPT. 8R-9E HATBORO, PA.

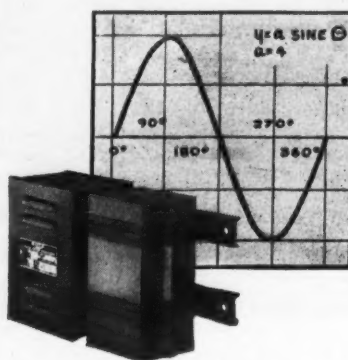
FLOWRATOR
TRADEMARK

When inquiring check CP 5665 on handy form, pgs. 2-3

Process Instrumentation

**Constant Voltage Transformer
Has Low Harmonic Distortion**

250, 500, 1,000 VA units used in laboratory
work, instrument calibration, etc.



Constant voltage transformer having
low harmonic distortion

component neutralizes the harmonics, normally present in output of constant voltage transformers, resulting in stabilized output containing less than 3% total harmonic distortion.

DESCRIPTION — Compact, economical units employ no moving parts and have same general operating characteristics as manufacturer's standard constant voltage transformers. Output voltage wave is essentially sinusoidal. Crest and average values of the output voltage wave are essentially the same as those of a sine-wave of equivalent R.M.S. value.

Type CVH transformers are available in 250, 500 and 1,000 VA capacities. Identical units may be operated in parallel for higher output capacity.

SOURCE — Sola Electric Company, Dept. CP, 4633 W. 16th St., Chicago 50, Ill., . . . or for more information check CP 5666 on handy form, pages 2 and 3.

*

**Registration Control Operates
On Low Color Contrast**

*Eliminates need for separate high-contrast marks;
actuates on 0.015" lines*

USES — Controls printing of registration marks on foil wrappers, labels, etc. Used with continuous or web-fed packaging machines.

FEATURES — Operates on low color contrast, thus eliminating necessity for printing separate high-contrast, registration mark on wrapper material. Actuates on marks as fine as 0.015".

DESCRIPTION — Control consists of two units connected by armored cable: scanner, which "sees" mark, and amplifier, which receives scanner impulse, amplifies it and actuates correcting mechanism which remedies out-of-position web conditions as a result of slippage or stretch.

Toggle switch permits change of operation from light increase to light decrease conditions such as caused by light spot on dark background or dark spot on light background. Operates at any speed up to 500/min., depending on size

USES — As source of stable voltage in most exacting applications. For general laboratory work, instrument calibration or other equipment having elements which are sensitive to power frequencies harmonically related to the fundamental.

FEATURES — Delivers constant voltage having low harmonic distortion. Additional circuit

FISHER
Improved **TITRIMETER**

Standard Instrument
for
Volumetric Analysis



The Fisher Improved Titrimeter (Reg. U. S. Pat. Off.) enables greater accuracy of results, saves time and opens new fields of application. It has three times the sensitivity of the original, and has only three controls.

End points detected by the electrometric method — indicated by the unmistakable movement of the magic eye — are much more accurate than those detected visually.

Fisher Improved Titrimeter, with Manual of Directions, for 110 volts, A. C., \$310.00

Headquarters for Laboratory Supplies

FISHER SCIENTIFIC CO. 117 E. 10th St., Pittsburgh 10, Pa.
2100 Locust St., St. Louis 13, Mo.
In Canada: Fisher Scientific Co. Ltd., 604 St. James Street, Montreal, Quebec

When inquiring check CP 5667 on handy form, pgs. 2-3

*The TIME IS OUT WHEN YOU
MEASURE YOUR VALUABLE
STORED LIQUIDS WITH
LIQUIDOMETER*

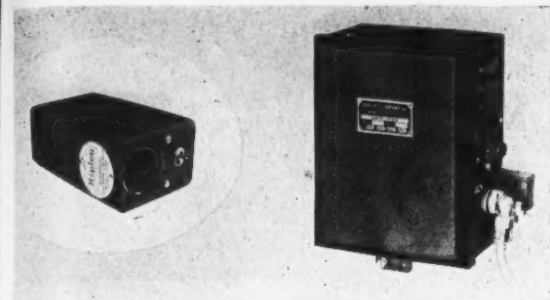


WRITE for
COMPLETE
DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check CP 5668 on handy form, pgs. 2-3



Scanner (left), amplifier (right)

of marks and distance between them. Scanner measures 6" x 4" x 4-1/2", amplifier 5-1/8" x 8-1/8" x 10-3/4".
SOURCE — Ripley Company, Inc., Dept. CP, Middletown, Conn., . . . or for more information check CP 5669 on handy form, pages 2 and 3.

★

Provides Interval, Delayed Action, Other Types of Timing

General purpose electronic timer has 2% repeat cycle accuracy, 0.03 sec. to 4 min. range



General purpose electronic interval timer

USES — Timer for hydraulic presses, chemical feeders, spot welders, grinders, conveyors, drilling machines, photographic printers, etc.

FEATURES — Provides all basic types of timing — interval, delayed action, automatic repeat, programming variations of these — through simple terminal panel connections. Repeat cycle

accuracy is 2%. Basic circuit is self-compensating for line-voltage changes so accuracy does not change from day to day. Vacuum tube replacement does not alter time setting. Exacting field tests show that life of timer is almost unlimited, maker reports.

DESCRIPTION — Has range of 0.03 seconds to 4 minutes.

Specifications follow:

Supply	115/230 volts, 50-60 cycles
Output	2 single-pole, double-throw switches
Relay Contact Rating	10 amp., 115 volts AC (main output) 1 amp., 115 volts AC (auxiliary)
Ambient Temperature	32° to 150° F
Ambient Relative Humidity	20% to 95%
Net weight	8 lb.

Further information can be obtained from manufacturer's Bul. PC47P.

SOURCE — The Series 30 electronic timer is made by Photoswitch Incorporated, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 5670 on handy form, pages 2 and 3.

JUNE, 1948

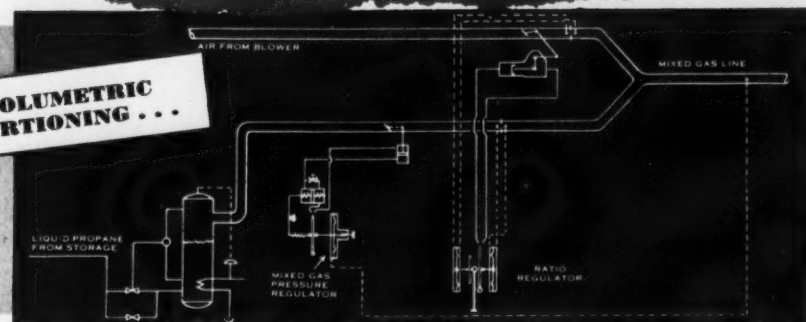
ASKANIA

Gas Mixing CONTROLS



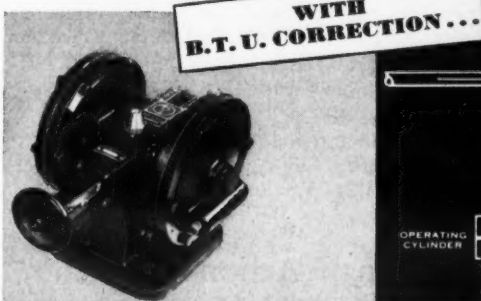
ASKANIA PRESSURE-FLOW REGULATOR

BY VOLUMETRIC PROPORTIONING . . .



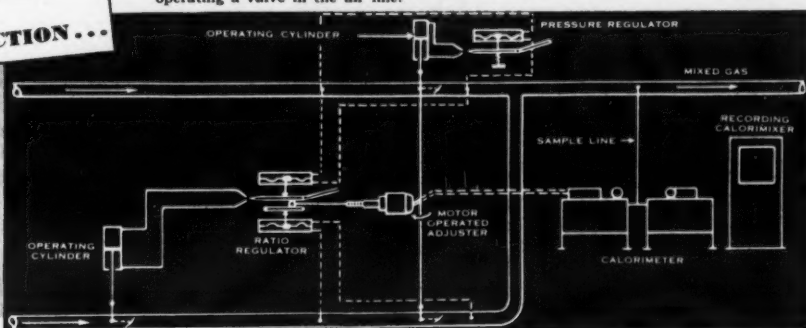
A simple method of mixing air with liquefied petroleum gas when the total range of flow does not exceed 1 to 10, and where volumetric proportioning produces a gas mixture with a sufficiently constant BTU value.

A standard Askania Pressure (or Flow) Regulator delivers gas to the mixing station in accordance with the demands for gas. Both gas and air flow are measured by orifices and a standard Askania Ratio Regulator maintains the flow through the air orifice in exact proportion to the gas flow. Ratio of flow is maintained by automatically operating a valve in the air line.



ASKANIA RATIO REGULATOR

WITH B.T.U. CORRECTION . . .



A method of handling flow ranges of more than 1 to 10. Instead of using fixed orifices as in the case of simple volumetric proportioning, the Askania Pressure Regulator changes the area of both the air and gas orifices, (which in this case are valves) operating them in parallel.

The Askania Ratio Regulator maintains a differential pressure across the gas orifice in direct ratio to the differential pressure existing across the air orifice. A Cutler-Hammer calorimeter is constantly measuring the BTU value of the mixed gas and adjusting the ratio regulator in accordance with the BTU changes.

Askania Regulators for pressure, flow and proportioning are ideally suited for gas mixing control. Operated by the sensitive Jet Pipe, Askania Regulators provide efficient, automatic control for simple volumetric proportioning or for the Askania-Cutler Hammer method in which corrections for pressure, temperature, humidity and gas heating values are made for extreme accuracy.

When you are considering the advantages of gas mixing to provide a stand-by, substitute or "peak-shaving" fuel, get the facts on Askania controls. Full details available.



ASKANIA JET PIPE PRINCIPLE

The Askania Jet Pipe converts the most delicate pressures or signals from the source of measurement into rate of movement of a hydraulic cylinder. It consists of the Jet Pipe swinging freely on a hollow vertical pivot into which oil is pumped at high pressure. As the oil stream leaves the nozzle of the Jet Pipe it strikes at two closely adjacent distributor openings. The openings are piped to both ends of the cylinder which is connected to valve, damper or other type controller.

The slightest change in the signal moves the Jet Pipe, causing more or less oil to enter the right or left opening. This causes the cylinder to move either to the right or left to correct for the signal variation. As soon as equilibrium is established the Jet Pipe returns to its median position.



Send for bulletin 135 . . . completely describing and illustrating Askania gas mixing methods and controls.

ASKANIA REGULATOR COMPANY

A subsidiary of General Precision Equipment Corporation
242 East Ontario St., Chicago 11, Ill.

When inquiring check CP 5671 on handy form, pgs. 2-3



● This U-type manometer is designed for line operating pressures up to 400 pounds per square inch.

The manometer body is of formed steel channel construction. The glass tubing is top grade, fully annealed. The two straight length individual tubes are connected by cross drilling the lower manometer end block.

Known as Model A-995, this unit is available for wall, front-of-board and flush front panel mounting. Its readings are always accurate—no cams, gears, or levers. Of outstanding ruggedness it is, nevertheless, highly sensitive to the slightest change in pressure, vacuum, or differential pressure.

It is built according to the traditional Meriam standards for long, dependable, satisfactory performance. Ask for Catalog Sheet A-995 WM.

**THE MERIAM
INSTRUMENT CO.**
10940 MADISON AVENUE
CLEVELAND 2, OHIO

WESTERN DIVISION: 1418 WILSON AVENUE, SAN MARINO 9, CALIF.
IN CANADA: PEACOCK BROS., LTD., MONTREAL



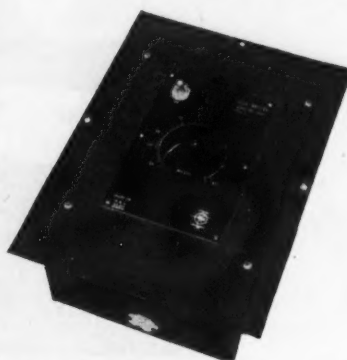
When inquiring check CP 5672 on handy form, pgs. 2-3

Page 60

Process Instrumentation

Controls Nitric Acid Concentration, 50-80%

*Sensitive relay operates warning device,
solenoid valves, etc.*



Controls nitric acid concentration

USES — Controls concentration of nitric acid in nitrating, other industrial processes.

FEATURES — Sensitive relay throws on unbalance of "eye tube" and delivers up to 2 amperes at line voltage for operation of warning devices, solenoid valves, etc.

DESCRIPTION — Modified AC Wheatstone Bridge using "eye tube" as null indicator. Control point is front-set. Range is 50-80% nitric acid. Temperature compensation is automatic by means of pre-filled reference conductivity cell. Measuring and reference cells are of Pyrex construction. Platinum electrodes, provided with Type 347 stainless steel 1" NPT fittings for pipe line installation.

SOURCE — Model RE-29G solu bridge controller is addition to line of Industrial Instruments, Inc., Dept. CP, 17 Pollock Ave., Jersey City 5, N. J. . . . or for more information check CP 5673 on handy form, pages 2 and 3.

Positive Snap Action Magnetic Switch Controls Liquid Level

*Float-switch system requires no packing boxes,
bellows, diaphragms; uses no relays*

USES — Used as liquid level controller on wide range of liquids. Installed directly on side or end of open or closed vessels.

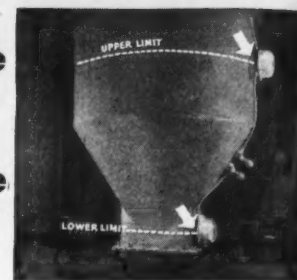
FEATURES — Heavy duty; simple; no conventional packing boxes, bellows or diaphragms. Positive snap action permits handling of heavier loads without use of relays or other auxiliaries, manufacturer states. Snap action is desirable for use with turbulent liquids because repeated opening and closing of switch, before positive action takes place, is avoided. Float drops appreciable distance before opening force is exerted. Switch has no direct mechanical linkage with float; separated by heavy, non-magnetic, stainless steel plate which, in closed tanks, serves as pressure barrier or seal.

DESCRIPTION — Key component of assembly is Magneswitch, contained in simple metal canister. Single-pole, double-throw action, and best described as a magnetic proximity switch containing an Alnico permanent magnet element. Float member is of conventional design except that it has a magnetic stainless steel element located near pivot point. A differential adjustment varies leverage exerted by weight of float.

As float rises, it brings magnetic element close to magnetic switch. Magnet snaps toward magnetic armature, thus

BIN-DICATORS

**... Release
Men for
Productive
Work!**



Many installations of two Bin-Dicators arranged as shown have released a man for productive work who formerly stood by to start and stop an elevator or conveyor as the bin filled or emptied.

When the level of material falls to the "Lower Limit," the Bin-Dicator will automatically start the feeding machinery. When the level of material rises to the "Upper Limit," the Bin-Dicator will automatically stop the feeding machinery.

Bin-Dicator Company • 14616 E. Jefferson • Detroit 15, Michigan

Free

Please send new 20 page illustrated catalog giving complete information and specifications on Bin-Dicators.

Name _____

Address _____

City _____ State _____ CP6

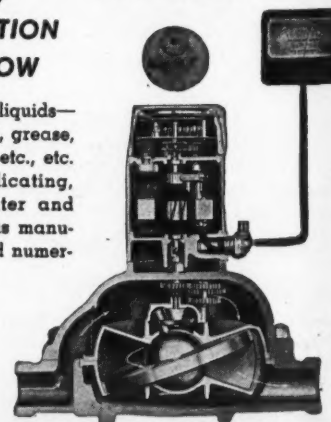
When inquiring check CP 5674 on handy form, pgs. 2-3

NEW HAYS VERIFLOW TOTALIZING-INDICATING METER

**Featuring
REMOTE INDICATION
OF RATE OF FLOW**

For practically all liquids—tar, molasses, crude oil, grease, paint, varnish, syrups, etc., etc.—for measuring, indicating, totalizing flow of water and chemicals in continuous manufacturing processes and numerous other uses. Its remote indicating feature is new—get the complete story.

SEND FOR
BULLETIN 46-766



The HAYS CORPORATION
SINCE 1907
COMBUSTION
INSTRUMENTS
AND CONTROLS
MICHIGAN CITY, INDIANA, U.S.A.

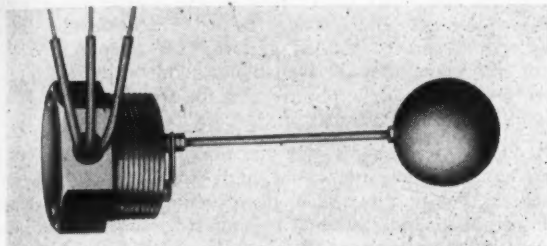
When inquiring check CP 5675 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Process Instrumentation

operating switch. As float drops, armature is pulled away from face of switch and magnet snaps back to original position, remaking original circuit and breaking other.

Switch is 2-1/32" dia. Manufacturer states that it has withstood 2,000,000 operations on 115-V, 10 amp. non-inductive load without failure. Rated to handle AC motors up to 1/4 hp, but has been used on 1/2 hp pump motors under load for as many as 30,000 operations without failure.



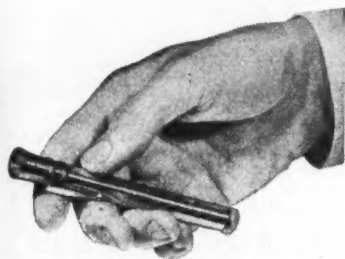
Model A Magneswitch controller arranged for connection to tank

Satisfactory up to 600 psi and 700° F. Exposed parts of non-corrosive materials. Special materials can be supplied for specific applications.

SOURCE — Development of Magneswitch, Inc., Dept. CP, 4235 S. Western Blvd., Chicago 9, Ill., . . . or for more information check CP 5676 on handy form, pages 2 and 3.

Pocket Instrument Indicates Radioactive Exposure Quickly

Simply read without use of electrostatic voltage indicator; protects personnel



Radiation Dosimeter fits into pocket

USES — Carried in pocket to provide quick indication of how much radioactivity the carrier has been exposed to. Especially useful for protection of X-ray and nuclear research personnel.

FEATURES — Can be read at any

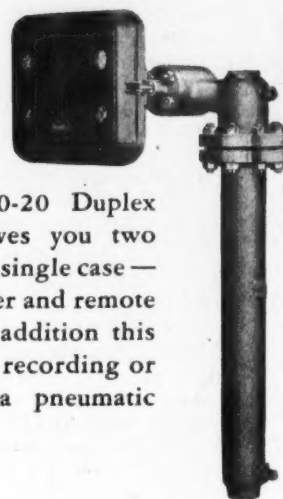
time, without use of electrostatic voltage indicator, by looking through cupped eyepiece toward light source.

DESCRIPTION — Observer sees magnified scale upon which an indicating line shows, in milliroentgens, the amount of radiation to which instrument has been exposed. Aluminum housing is light-weight and does not appreciably distort free air reading of machine. Molded, flake-proof, conducting plastic cathode surrounds the ion chamber. Anode is a highly-sensitive fused quartz fiber, 5 microns thick. Molded polystyrene insulators with optically smooth surfaces reduce leakage and increase accuracy.

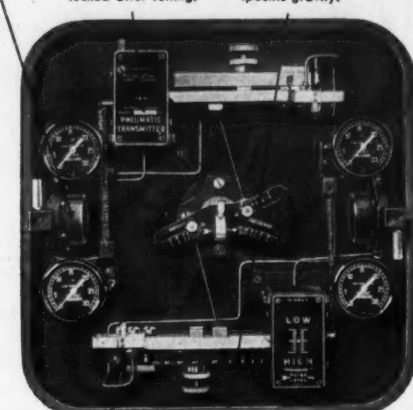
SOURCE — The Model 3360 Pocket Dosimeter is made by Instrument Development Laboratories, Dept. CP, 229 W. Erie St., Chicago 10, Ill. . . . or for more information check CP 5677 on handy form, pages 2 and 3.

JUNE, 1948

LEVEL Controller and Transmitter in ONE unit!



Transmitter Pilot **Zero Setting Index** for adjustment of normal zero. Adjusting screw is locked after setting. **Specific Gravity Scale** calibrated from 0.5 to 1.2 or from 0.8 to 2.0 specific gravity. **Controller Pilot**



Masoneilan Model 12600-20 Duplex Controller-Transmitter gives you two pneumatic mechanisms in a single case — proportional level controller and remote pneumatic transmitter. In addition this arrangement can include a recording or indicating receiver and a pneumatic signal switch.

The Advantages . . .

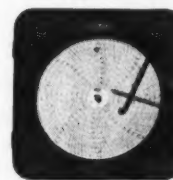
- 1. Lower original cost.** Control and transmission in a single unit costs less than two individual units.
- 2. Lower installation cost.** One installation instead of two. The single unit also saves space, increases accessibility in crowded locations.
- 3. Remote transmission** permits location of recording or indicating receiver on a central control panel.
- 4. Explosion-proof pneumatic signal switch** provides step by step indication of level or control of related process by actuating signal lights, audible alarms, solenoids, motors or other electrical devices.

Duplex Controller-Transmitter

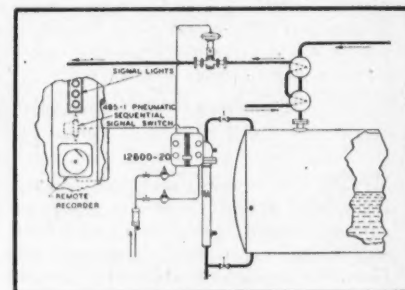
Proportional Band Scale calibrated from 2 to 100% over 4-inch length. Linear proportional characteristics to close limits in all settings.

Specific Gravity Scale calibrated from 0.5 to 1.2 or from 0.8 to 2.0 specific gravity.

Setting Index Scale provides control point setting through full level range. Vernier knob for smooth and positive adjustment.



Recording receiver



Typical application



MASON-NEILAN REGULATOR CO.

1203 ADAMS STREET, BOSTON 24, MASS., U. S. A.

New York • Buffalo • Chicago • St. Louis • Philadelphia • Houston • Pittsburgh • Cleveland • Tulsa • Atlanta • Denver • Cincinnati • Los Angeles • San Francisco • Mason Regulator Company of Canada, Ltd., Montreal and Toronto

When inquiring check CP 5678 on handy form, pgs. 2-3

MICRO Precision Switches

for use in explosive atmospheres in
CHEMICAL PLANTS;
PAINT, STARCH and PYROXYLIN
FACTORIES;
FLOUR MILLS and GRAIN
ELEVATORS; OIL REFINERIES



MICRO...first name
in precision switches

•MICRO explosion-proof switches are a safeguard in explosive atmospheres. They are used as limit, safety, or control switches, or as interlocks on equipment.

Sturdy metal housings are small enough to fit in the palm of your hand. MICRO explosion-proof switches are available with either straight plunger or adjustable roller arm actuator.

Operating points and small movement differential are accurately maintained through millions of operations, assuring dependable precision performance and extremely long life.

MICRO explosion-proof switches are listed by Underwriters' Laboratories for hazardous atmospheres, Class I, Groups C and D, and Class II, Group G, with ratings as follows:

125 volts, a-c	10 amperes
250 volts, a-c	5 amperes
460 volts, a-c	3 amperes

MICRO SWITCH engineers have wide experience in applying MICRO explosion-proof switches for equipment used in explosive atmospheres. Their services and suggestions are available on request. Contact the nearest branch office or sales representative listed below or write direct to MICRO SWITCH, Freedport, Illinois.



BRANCH OFFICES: CHICAGO 6, 308 W. Washington St.; NEW YORK 17, 101 Park Avenue; CLEVELAND 15, 2536 Euclid Avenue; LOS ANGELES 14, 1709 West 8th St.; BOSTON 16, 126 Newbury St.

SALES REPRESENTATIVES: PORTLAND, ORE., 917 S. W. Oak Street; ST. LOUIS 5, 6625 Delmar; DALLAS, TEXAS, Irwin-Kessler Bldg.; TORONTO, Ontario, Can., 11 King St.

When inquiring check CP 5679 on handy form, pgs. 2-3

New Literature

Describes Many New Pieces of Laboratory Equipment

"What's New in the Laboratory", fourth issue, describes and illustrates many new pieces of equipment for use in the laboratory. Included are an improved glass tube cutter, Plexiglass test tube rack, Weston relative humidity indicator, Adams safety-head centrifuge, "Volt-box" portable transformer, and floor safety mats. Also Todd vacuum pumps, combination razor blade-knife, one-gallon autoclave, inexpensive balance, microscope lamp, laboratory stirrer, Bakelite slide boxes, and a resin reaction assembly.

This 8-page, 2-color publication is issued by the Scientific Glass Apparatus Co., Inc., Dept. CP, 49 Ackerman St., Bloomfield, N. J. When inquiring specify CP 5680 on handy form, pages 2 and 3.

Wall Chart Lists 30 Properties of 17 Popular Rigid Plastics

Properties of 17 popular rigid plastics are listed on a 17 x 22" chart. Arranged in the order of their increasing specific gravities, the plastics include a total of 30 properties under general headings such as mechanical, electrical, optical, thermal, flammability and stability.

They include polystyrene, ethyl cellulose, nylon, methacrylates (both molded and cast), cellulose propionate, cellulose acetate-butyrate, molded and cast phenolics, cast allyls, polyvinyl chloride, cellulose acetate, vinyl chloride-acetate, cellulose nitrate, melamines, ureas and vinylidene chloride. Bulletin C-7-105, issued by Chemical Division, Koppers Company, Inc., Dept. CP, Pittsburgh 19, Pa. When inquiring specify CP 5681 on handy form, pages 2 and 3.

Gives Engineering Data on 11 Basic Butterfly Valves, Size 2 to 48", also Prime Movers

Practical engineering information concerning butterfly or disc-type valves is available in a 52-page catalog. Indexed for quick reference, it includes a special 5-page section on prime movers, showing a score or more with dimensional data recommended for use with the valves. More than 70 photographs and tables, covering 11 basic types of butterfly valves, are keyed to valve drawings to show dimensions in all sizes from 2 to 48".

Manual controls, extended shafts for automatic controls and finned boxes for high temperature service are detailed. Catalog 17, issued by R-S Products Corporation, Dept. CP, Dept. DH, Wayne Junction, Philadelphia 44, Pa. When inquiring specify CP 5682 on handy form, pages 2 and 3.

Offers 1/5, 1/10, 1/100 Second Timers, Other Swiss Stop Watches, from Stock

Imported Swiss stop watches of Minerva make are illustrated and described in a 4-page bulletin. Available from stock, these include 1/5, 1/10 and 1/100 second timers, also decimal timers, pocket and wrist chronographs. Non-breakable coil-spring mechanisms are said to make these watches "practically free of breakage or wearing out."

Ten watches are shown, and additional models are described. Bulletin 576, issued by Herman H. Sticht Com-

pany, Inc., Dept. CP, 27 Park Place, New York 7, N. Y. When inquiring, specify CP 5683 on handy form, pages 2 and 3.

Diamond Abrasives, Applicator, Speed Heavy Cutting, Fine Finishing of Carbides, etc.

Various grades of diamond abrasives for finishing steel, carbides and other hard materials are listed, along with descriptive data, in a 4-page folder. Identified by color as well as grade number, and in various concentrations for each grade, they are available in hermetically-sealed cartridges with handy applicator gun for application direct to work or lap. Illustrated.

Reduction needle slips over gun nozzle for applying small amounts. Lubrication fluid and atomizer are also described. Grades range from heavy cutting to fine finishing. Literature includes specific recommendations for use. Issued by Elgin Sapphire Products Division, Elgin National Watch Company, Dept. CP, Aurora, Ill. When inquiring specify CP 5684 on handy form, pages 2 and 3.

Catalog Shows 53 Metal Marking Tags, Full Size, with Stock Numbers

53 standard shapes and sizes of metal marking tags for every occasion are illustrated full-size, with stock numbers, in a 6-page catalog-bulletin. Stamped or embossed to

Wood Tanks?

There are None Too **BIG**
... and none too small
for SANTA FE to build

Pictured here is a 100 foot diameter Wood Stave Tank built to hold approximately 900,000 gallons of chemicals.

Wood Stave Tanks are built to exacting specifications or in regular sizes and shapes. SANTA FE can offer you a half century of experience in building the tanks YOU need. Write today for information.



When inquiring check CP 5685 on handy form, pgs. 2-3

user's specifications, they are described as permitting mass production economies on small as well as large runs of metal tags.

20 custom-made tags are also illustrated in a wide variety of shapes and designs. Issued by The Metal Marker Mfg. Company, Dept. CP, 1388 E. Fortieth St., Cleveland, O. When inquiring specify CP 5686 on handy form, pages 2 and 3.

"Dual-ability" Provides Choice of Centrifugal or Rotary Positive Foundry Cupola Blowers

8-page, 2-color bulletin describes line of centrifugal and rotary positive type blowers particularly suited for use on foundry cupolas. Advantages of "dual-ability", choice of either of the two types, are pointed out. Performance curves, diagrams, features, installation views of both types are included. Illustrations are presented. Table lists melting rates, with air volume and pressure required, for standard size cupolas. Another table points out performance data on sizes and types of blowers recommended for use on foundry cupolas.

Application of air-weight controls to either type of blower is discussed. Bul. 120-23-B11, issued by the Roots-Connersville Blower Corp., Dept. CP, 900 W. Mount St., Connersville, Ind. When inquiring specify CP 5687 on handy form, pages 2 and 3.

Discusses Developments, Improvements in Use of Lead and Lead-lined Products

Significance of lead and lead-lined products in the atomic era is emphasized by publication of a 12-page brochure. The booklet is taken from a 30,000-word treatise on "History and Origins of Metallic Lead Products," to be published shortly.

Authored by Alfred P. Knapp, president, Knapp Mills, Inc., and Andrews-Knapp Construction Co., New York, the book will present a factual story of the development and uses of lead from earliest times to the present. Brochure discusses current developments and improvements in the use of lead-lined products, chemical apparatus and lead construction, as compared to past practices. Issued by A. P. Knapp, president, Knapp Mills, Inc., Dept. CP, 121 Broad St., New York 4, N. Y. When inquiring specify CP 5688 on handy form, pages 2 and 3.

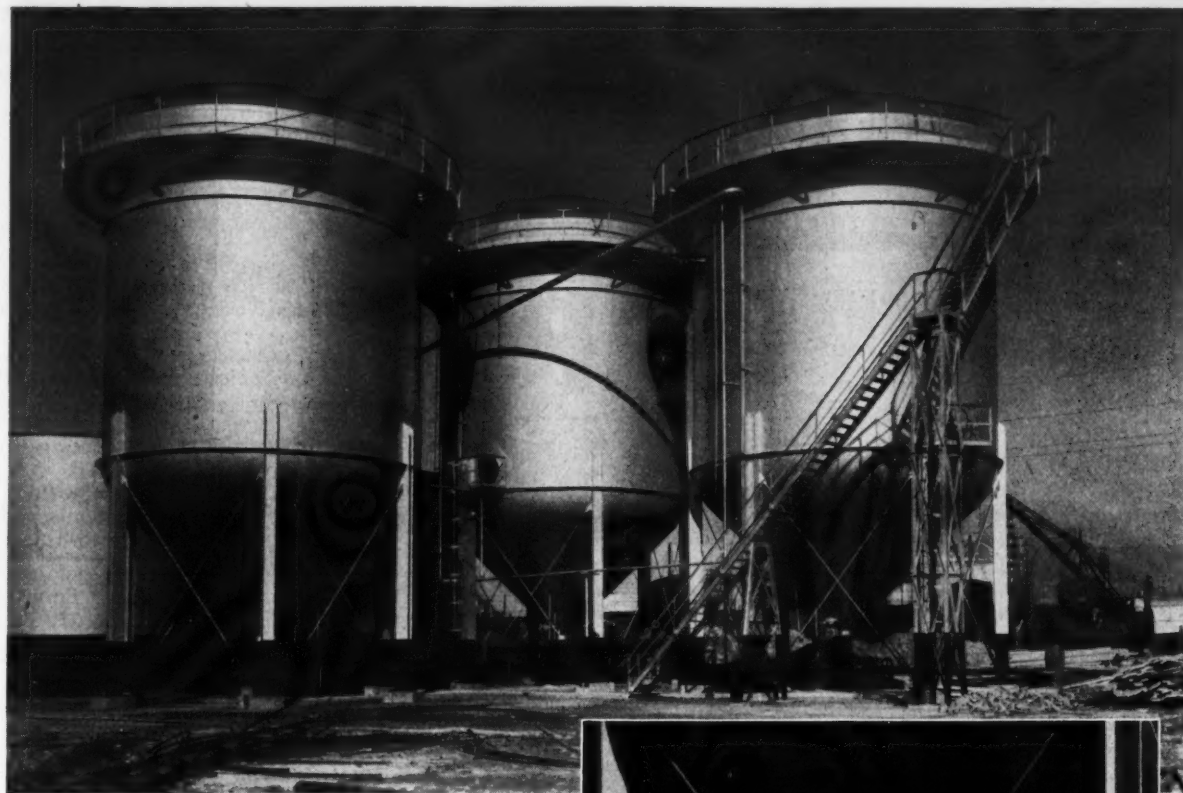
Describes Forming Techniques, Tool Design for Chromium-Nickel Stainless Steels

Modern forming procedures, as applied to chromium-nickel stainless steels and practiced in fabrication plants throughout the nation, are described in detail in a 310-page volume, with illustrations. Bending and straight flanging, forming of curved sections and tubing, deep drawing, die forming, forming of contour-flanged parts, and forming by miscellaneous methods, are some of the subjects covered.

Specific examples of forming techniques are supplemented by details of tool design and tool materials, lubricants, dimensional data and consecutive steps in fabrication. Literature aids understanding of the adaptability of stainless steels to all modern forming processes. "Forming of Austenitic Chromium-Nickel Stainless Steels." Price, \$4. Remit direct to The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. Or, when inquiring, specify CP 5689 on handy form, pages 2 and 3.

JUNE, 1948

SPECIAL TANKS help refinery separate oil from silt

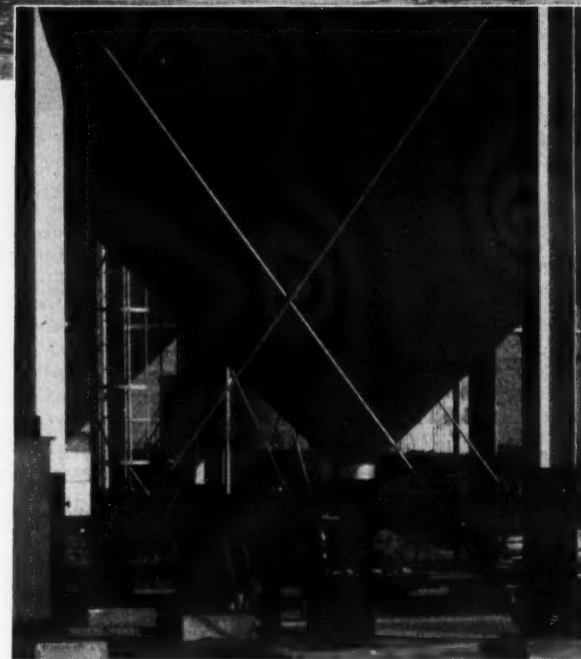


A petroleum refinery in Louisiana uses water from the Mississippi River for various purposes. The water contains a considerable amount of silt and, during the process, the silt becomes saturated with oil. The three cone-bottom silt aeration tanks shown above are used to separate the oil from the silt.

The water, after being used, flows through large gravity-type separators where free oil is removed. The silt, which has a 20 per cent oil content, settles in the bottom of the separators and is pumped into the three 4,000-bbl. tanks where it is diluted with water. The oil in the silt is removed by repeating an aeration cycle until the oil content is reduced to a negligible amount. This usually takes from 16 to 24 hours. The oil rises to the top and flows over weirs at the top of the tanks, through a trough, into storage tanks.

About 500 barrels of silt are aerated per day, yielding from 60 to 80 barrels of oil. The recovered oil is processed and fed back into the refinery stills.

These silt aeration tanks are examples of the special structures we build for industry. When figuring on installations that include this kind of equipment, write our nearest office for quotations.



Top: Three 4,000-bbl. silt aeration tanks used to aerate 500 bbls. of silt per day. Above: Close-up of one of the tanks showing connections for admitting and removing silt.

HORTON
STEEL STORAGE TANKS
designed, fabricated, erected
for the chemical
and process industries

CHICAGO BRIDGE & IRON COMPANY

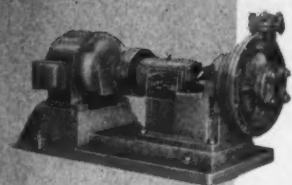
Atlanta 3	2107 Healey Bldg.	Houston 2	2151 National Standard Bldg.
Birmingham 1	1533 North Fifth St.	Los Angeles 14	1436 Wm. Fox Bldg.
Chicago 4	2116 McCormick Bldg.	New York 6	3314-165 Broadway Bldg.
Cleveland 13	2212 Guldahl Bldg.	Philadelphia 3	1650-1700 Walnut St. Bldg.
Detroit 26	1535 Lafayette Bldg.	San Francisco 11	1245-22 Battery St. Bldg.
Havana	402 Abreu Bldg.	Tulsa 3	1649 Hunt Bldg.

Plants at BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

When inquiring check CP 5690 on handy form, pgs. 2-3

OLIVITE

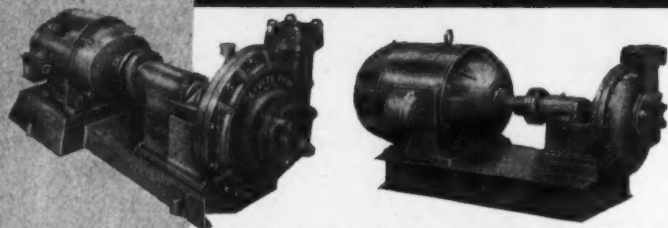
ACID-HANDLING



PUMP

Centrifugal Pumps - Combining High Efficiency

With Protection of Parts



If chemicals were like water, there would be little trouble pumping them in and around a process plant. But they aren't and the pump that is the best buy is one that combines effectiveness of pumping with effectiveness of protection. For this, we recommend our Olivite Acid-Handling Pump.

Hydraulically, it will stand up with the best of pumps. Chemically, it offers distinct advantages. Shaft and bearings are fully protected from the chemicals. Every inch of contact surface is protected by a durably bonded, special rubber highly resistant to practically all acids and to many chemicals, hot or cold.

The sales record of Olivite Pumps is one of "repeat orders." One large plant recently ordered 50 more Olivites to round out a total of about 150 units. Such a pump is likely to do a good job for you, too. Why not find out? Bulletin 308-R will give you the details. In writing for it, tell us about your problem.

Shipment from Eastern or Western Factory!

OLIVER UNITED FILTERS INC.

New York 18, N. Y.
33 West 42nd Street

San Francisco 11
California

Sales & Manufacturing
Representative:
E. Long Limited
Orillia, Canada

Chicago 1, Ill.
221 N. LaSalle Street
Western Sales Division
Oakland 1, Calif.
2900 Glascock Street



Factories: Oakland, Calif. • Hazleton, Pa. • Orillia, Canada • Melbourne, Australia

When inquiring check CP 5691 on handy form, pgs. 2-3

New Literature

Ultraviolet Germicidal Lamps Provide Personnel and Product Protection Against Bacteria

Company offers comprehensive line of literature about germicidal equipment. Equipment protects personnel from air-borne bacterial infection and reduces product spoilage in pharmaceutical and other processing plants. Booklet, "Danger in the Air," keynotes literature. Information on specially designed fixtures is available.

Issued by Hanovia Chemical and Mfg. Co., Dept. CP, Newark 5, New Jersey. When inquiring, specify CP 5692 on handy form, pages 2 and 3.

★

Dial Scales for Weighing and Counting Include Many Types, Applications

Industrial weighing and counting dial scales of many types are portrayed, described, in a graphic, 12-page folder. Types covered include floor, overhead, bench and mobile units; hopper scales, fan and over-under types, built-in units and motor-truck scales.

Constructional features are pointed out. Installation photographs are included. Form 2020B, issued by Toledo Scale Company, Dept. CP, Toledo 12, O. When inquiring specify CP 5693 on handy form, pages 2 and 3.

★

Patches, Overlays Concrete or Wood Floors Without Chipping or Base Preparation

A heavy-duty resurfacer which repairs and overlays concrete and wood floors without base preparations or costly chipping is described in an illustrated pocket folder. Material is applied 1/2" thick, directly over old surfaces, literature explains. Typical installations are shown, and 27 users are listed by name and city.

Stonhard Resurfacer leaflet, issued by Stonhard Company, Dept. CP, 403 N. Broad St., Philadelphia 8, Pa. When inquiring specify CP 5694 on handy form, pages 2 and 3.

★

Specifications, Uses of Diaphragm Slurry Pumps Shown; For Abrasive, Thick Materials

Description, types and sizes, and pictures of various diaphragm pumps for use with abrasive or thick materials, or fluids that clog or build up on pump parts are given in 8-page bulletin. Long list of materials handled is shown. Two pages are devoted to performance reports in chemical, ceramic, non-metallic mining, smelting and refining and electroplating industries. Besides pictures of individual pumping units, installation photographs are presented.

Bul. 126, issued by T. Shriver and Company, Inc., Dept. CP, 810 Hamilton St., Harrison, N. J. When inquiring, specify CP 5695 on handy form, pages 2 and 3.

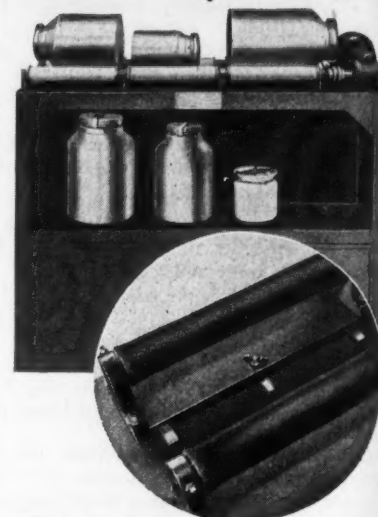
★

Catalogs Shop and Protective Clothing, Machinery Covers, Welders' Aprons

Clothing for both shop and protective uses, also machinery covers and welders curtains, are among many items which are described and illustrated in a 20-page "Buyers Index." Miscellaneous items such as buffing and polishing wheels and cotton industrial bags are included.

Wide selections of canvas, leather and acid-resistant gloves are shown, also cotton shop and plastic pro-

"Roller" Type Jar Mills



FOR maximum convenience and low cost in grinding and pulverizing pigments, minerals, inks, colors, chemicals, etc., you can't beat "U.S." roller-type jar mills. They require no clamping into frames or housings. Just set the jar on the revolving rollers, and let it roll.

Only in "U.S." roller-type jar mills will you find these two important features:

- 1st The special design of the rubber-covered steel rollers, one convex and one concave,* automatically holds the jar centered on the rolls, prevents creepage.
- 2nd The "idler" rollers are adjustable laterally to permit handling various size bottles, mill jars or other round containers. Roller-type jar mills without this adjustable feature are available at slightly lower cost.

"U.S." roller-type jar mills are made in sizes to accommodate from one to sixteen mill jars of any capacity up to six gallons, and are available with or without cabinets, clocks, timers, etc.

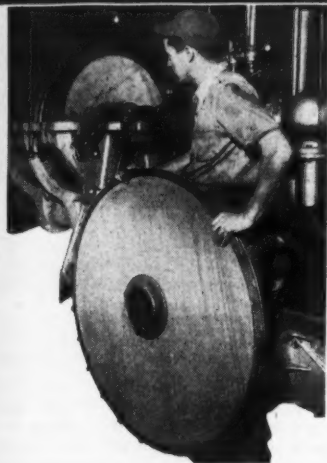
Write today for Catalog 260 showing various styles and types of "U.S." roller-type jar mills.



*Patent Pending

When inquiring check CP 5696 on handy form, pgs. 2-3

Cambridge WIRE CLOTH and FABRICATIONS



These Cambridge-built leaves for Valley Pressure Filter provide efficient filtration and clarity of product. Cambridge screens are available for replacement as well as in complete leaves.



"JOB-FITTED" to your installation

Whether your products are screened, filtered, or chemically treated, the Cambridge industrial wire cloth or fabrications designed especially for your problem are "JOB-FITTED" for maximum performance and operating economy.

Specific metals or alloys . . . certain meshes or weaves . . . are selected from our past engineering experience with the conditions under which your wire assemblies must be used.

FREE CATALOG listing and describing the entire line of Cambridge screen and filter cloth. Invaluable purchasing aid. Write for your copy today.



Call in your Cambridge engineer whenever you have a problem involving specialized wire screens or fabrications.

There's a Cambridge Sales Office near you!



Cambridge
WIRE CLOTH CO.

Department E • Cambridge 6, Md.
SALES OFFICES IN: BOSTON • NEW YORK
BALTIMORE • PITTSBURGH • DETROIT
CHICAGO • SAN FRANCISCO • ST. LOUIS

When inquiring check CP 5697
on handy form, pgs. 2-3

JUNE, 1948

New Literature

protective aprons, service uniforms. Issued by Associated Bag and Apron Company, Dept. CP, 220 W. Ontario St., Chicago 10, Ill. When inquiring, specify CP 5698 on handy form, pages 2 and 3.

★

Unit Heaters, 1500-60,000 Watts, Covered in Catalog; Complete Specifications Listed

Unit heaters of 1500 to 60,000 watts are described. Installation, wiring, equipment diagrams and photographs are shown. Data on control thermostats, relay transformers, contactors, and switches are included. Specifications of all types of heaters, including portable and "built-in-wall" types, fill six pages of 16-page catalog. Useful Heating Analysis Data Sheet, to aid in solving heating problems, is attached. All heaters approved by Underwriters' Laboratories and Canadian Standards Association.

Catalog EC-4 issued by Electromode Corp., Dept. CP, 45 Crouch Street, Rochester 3, N. Y. When inquiring specify CP 5699 on handy form, pages 2 and 3.

★

Album Presents Interesting Photographs of Recent Weldments, with Descriptions

Illustrated examples of recent weldments are presented in a 12-page brochure, with descriptions. These cover slides, crowns, adjusting screws, frames for several presses; gear blanks; engine frames; bases, beds and other parts for blowers, mills, planers, etc.

Examples are selected to demonstrate advantages of welded construction such as rigidity, lightness, economy, predictability, facility of changing design, individuality and beauty of contour. "Album of Recent Weldments," issued by The United Welding Company, Dept. CP, 1909 Lafayette St., Middletown, O. When inquiring, specify CP 5700 on handy form, pages 2 and 3.

★

600-lb. Forged Steel Valves Available in Gate, Globe, Angle and Check Styles

600-lb. forged steel gate, globe, angle and check valves, with various types of trim, are described in illustrated and indexed 16-page catalog. Valves are manufactured in screwed, flanged and socket-weld types. Design and construction, materials, ratings and markings are described. Detailed are gate valves, union bonnet and bolted bonnet; globe and angle, O. S. and Y union and bolted bonnet; check valves, horizontal, lift union and bolted cap.

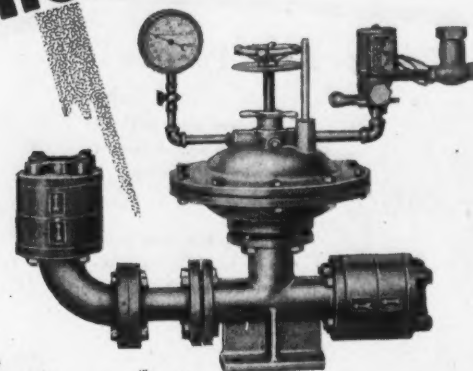
Form 48FS is issued by The Ohio Injector Company, Dept. CP, Wadsworth, Ohio. When inquiring specify CP 5701 on handy form, pages 2 and 3.

★

Describes Composition, Working Temperatures of High-strength Low-alloy Steels

High-strength low-alloy steels, their composition, yield strengths, forging and hot bending temperatures, riveting, welding, etc., are described briefly in a 2-page leaflet. Vol. 3, No. 3 of "Tempil Topics," issued by Tempil Corporation, Dept. CP, 132 W. 22nd St., New York 11, N. Y. When inquiring specify CP 5702 on handy form, pages 2 and 3.

HIGH in Versatility



O.D.S. DIAPHRAGM SLURRY PUMP

LOW in Maintenance

This is the diaphragm slurry pump that is handling effectively such products as: aluminum hydrate, magnesium chloride, sodium tungstate, sodium sulphate, various metallurgical slurries; sugar, salt, organic and inorganic products; hydrochloric, sulphuric, phosphoric acids; and cubed vegetable soup.

The diaphragm is actuated in timed pulses by either air or gas pressure, by vacuum, or by a combination of both. It is designed to pump against heads up to 200 feet and to charge either by gravity or against lifts up to 15 feet.

Low maintenance features include: (1) no mechanical linkage to the diaphragm; (2) uniform force on diaphragm; (3) no holes punched in the diaphragm; (4) ample clearance in ball valves for passage of solid matter; (5) no motor, stuffing box, packing or high speed moving parts.

With several sizes from 1 to 3 inches, you can find in a single unit or battery the capacity required for your slurry pumping job. Write for Bulletin 309.

Shipment from Eastern or Western Factory!

OLIVER UNITED FILTERS INC.



New York 18, N. Y.

33 West 42nd Street

San Francisco 11
California

Sales & Manufacturing
Representative:
E. Long Limited
Orillia, Canada

Chicago 1, Ill.

221 N. LaSalle Street
Western Sales Division
Oakland 1, Calif.
2900 Glascock Street

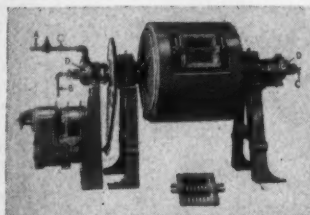
Factories: Oakland, Calif. • Hazleton, Pa. • Orillia, Canada • Melbourne, Australia

When inquiring check CP 5703 on handy form, pgs. 2-3

Grinding • Mixing • Blending
... the Way You Want It
..... in Less Time

in
ABBÉ
MILLS

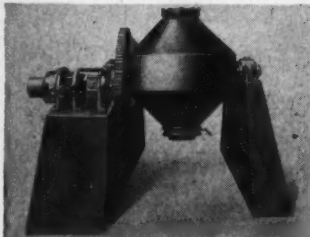
The Right Type for Every Purpose



Stainless steel jacketed Ball mill with dustproof discharge housing.



Pebble Mill with variable speed drive; jacketed for heating and operation under vacuum.



Double Conical Blender for mixing and blending dry materials.



Jar Rolling Machine for porcelain or metal jars of assorted sizes, easily removable.

ABBÉ ENGINEERING CO.
 46 CHURCH ST., NEW YORK 7, N. Y.

Write for Catalog

When inquiring check CP 5704 on handy form, pgs. 2-3

What's your attitude?

TOWARDS SOMETHING THAT'S REALLY NEW IN ADHESIVES? The reason we ask is this: Many amazing product improvements have resulted from applying new "RESYN" adhesives to packaging, converting and assembling operations previously thought to be at their highest level of efficiency.

"RESYN" adhesives provide higher resistance against all forms of moisture and temperature variations... adhere a wider variety of surfaces... offer a greater protection against vermin, mould, age... and add definite sales advantages to the finished product.

Successful "RESYN" adhesives are now used for: Carton making — Coffee bag making — Casket making — Labeling — Tube winding — Permanent identification of outdoor packages — Wood working — Book making — Paper drape making.

If you're open minded about these really new "RESYN" adhesives, address 270 Madison Ave., New York 16, N. Y. *Reg. Trade Mark

National
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

When inquiring check CP 5705 on handy form, pgs. 2-3

New Literature

Shows, Describes Belt-type Troughing, Return Idlers

Troughing and return idlers for belt conveyors are presented, with specifications and pictures, in a 12-page booklet. Includes ball and roller-bearing types, also cushion and training idlers, with changes in engineering details.

Features such as one-shot lubrication, triple grease seal and rigid truss construction are pointed out. Bulletin 120-A1, issued by Robins Conveyors Div., Hewitt-Robins Inc., Dept. CP, Passaic, N. J. When inquiring specify CP 5706 on handy form, pages 2 and 3.

★

Air-motored Agitator Is Explosion-proof

An air-motored, explosion-proof agitator, primarily for mixing 500-gal. batches of essential oils, is presented in a 4-page circular. Table and specifications aid selection of proper units for consistencies such as gasoline, paint, crank case oil and 100% glycerine.

7 types, with 9 types and sizes of propellers in various metals, are shown. Direct drive or geared, they are suitable for high temperatures. Air shuts off automatically if stalled. Issued by Eclipse Air Brush Company, Pneumix Div., Dept. CP, 413 Park Ave., Newark 7, N. J. When inquiring specify CP 5707 on handy form, pages 2 and 3.

★

Describes, Lists Properties of Pharmaceutical Chemicals

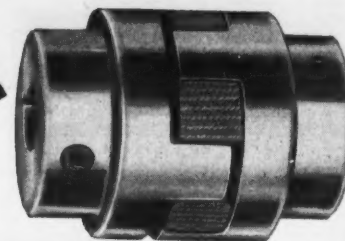
Chemicals for the pharmaceutical industry are described in a 64-page booklet, with charts and illustrations. Physical and chemical properties are listed, along with descriptive information.

Some of these include citric, tartaric, gluconic and other acids, antibiotics, vitamins, iodides, etc. Alphabetically indexed. "Products for the Pharmaceutical Industry," issued by Chas. Pfizer & Company, Inc., Dept. CP, 81 Maiden Lane, New York 7, N. Y. When inquiring specify CP 5708 on handy form, pages 2 and 3.

★

Steel Plant Issues Safety Booklet
 Common causes of molten metal explosions are one of the many subjects covered in a 20-page booklet on ac-

TYPE "A" with suitable cushion material



Specify

LOVEJOY L-R

FLEXIBLE COUPLINGS

Write for Lovejoy catalog and Selector charts to find the coupling that fits your particular job.



With METALFLEX cushion material — for use where heavy shock loads, extreme pressure, heat up to 650° F. cause other materials to deteriorate rapidly.

With LEATHER cushion material — for sustained loads of a uniform nature where misalignment is great.

With GX cushion material — for use where loads fluctuate greatly; where extreme resilience is required; and where hysteresis loss must be kept to minimum.

LOVEJOY FLEXIBLE COUPLING CO.

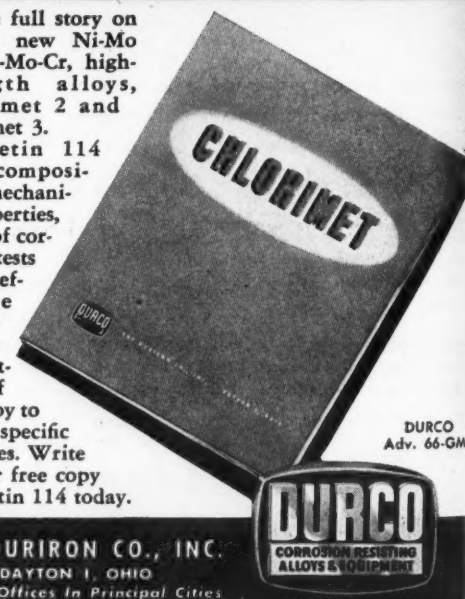
50/2 W. Lake St., Chicago 44, Illinois
 Mfrs. of Lovejoy Variable Speed Transmissions

When inquiring check CP 5709 on handy form pgs. 2-3

NEW! COMPLETE BULLETIN
on New, Tough, Corrosion-Resistant Alloys

Get the full story on Durco's new Ni-Mo and Ni-Mo-Cr, high-strength alloys, Chlorimet 2 and Chlorimet 3.

Bulletin 114 gives composition, mechanical properties, results of corrosion tests and a reference table describing the resistance of each alloy to scores of specific corrosives. Write for your free copy of Bulletin 114 today.



DURCO Adv. 66-GM

THE DURIRON CO., INC.
 DAYTON 1, OHIO
 Branch Offices in Principal Cities

DURCO
 CORROSION RESISTANT ALLOYS & EQUIPMENT

When inquiring check CP 5710 on handy form pgs. 2-3

CHEMICAL PROCESSING Preview

SPRAY NOZZLE ACCURACY



Spraying Systems SPRAY NOZZLES consistently provide accuracy of spray that means better operation and lower cost for you. Whatever you specify in terms of pressure, volume, spray pattern, distribution, impact, and atomization can be duplicated accurately with a Spraying Systems Spray Nozzle. Write for the facts... ask for Catalog 22, a reference manual that lists spray characteristics for thousands of spray nozzle types and sizes.

SPRAYING SYSTEMS CO.

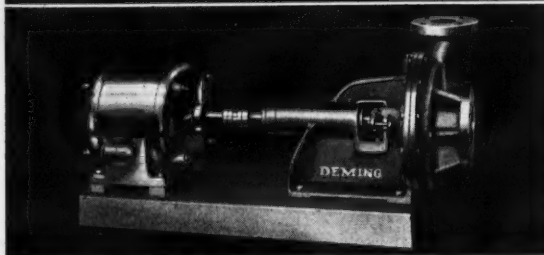
Engineers and Manufacturers

4037 W. LAKE STREET • CHICAGO 24, ILLINOIS

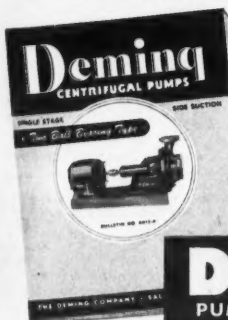
WRITE FOR CATALOG 22

When inquiring check CP 5711 on handy form, pgs. 2-3

NOW AVAILABLE



NEW Side Suction Centrifugal Pumps



Designed for general industrial, heavy duty service. Double ball bearing type. Many important features. Full range of sizes from 1 to 10 inch discharge. All capacities from 10 to 1200 gallons per minute. Furnished for belt, electric motor or gasoline engine drive. Orders placed NOW assured prompt deliveries. Write for Illustrated Bulletin 4013-A.

THE DEMING COMPANY
522 BROADWAY • SALEM, OHIO

DEMING
THE COMPLETE LINE
PUMPS AND WATER SYSTEMS

When inquiring check CP 5712 on handy form, pgs. 2-3

JUNE, 1948

New Literature

cident prevention in industry. Prepared especially for use by employees.

Tells how to lift and handle loads with least strain or hazard; how to avoid falls; where to use the various types of fire extinguishers; how to avoid heat diseases; first aid for acid, gas or electrical injury, etc. "Safety," issued by Allegheny Ludlum Steel Corporation, Dept. CP, 2020 Oliver Bldg., Pittsburgh, Pa. When inquiring specify CP 5713 on handy form, pages 2 and 3.

★

Solvent-free Hotmelts Coat Speeding Paper

Ethocel hotmelts for paper coatings, how they are applied, and properties obtained when used on papers, are described in a 15-page technical booklet.

With proper equipment, these melts are coated on paper at high speeds. Being solvent-free, their application is said to involve no drying problem and little fire hazard. Issued by Plastics Div., The Dow Chemical Company, Dept. CP, Midland, Mich. When inquiring specify CP 5714 on handy form, pages 2 and 3.

★

Tube Fittings Harness High Fluid Pressures

Importance of tube fittings in sealing higher fluid pressures is stressed in a 12-page catalog. Basic oil-pressure problems are summarized. Detailed engineering specifications are presented both for "Fluid Fortress" no-flare and "Grip Tube" flare-type fittings.

Design, construction and performance are revealed. Catalog 400, issued by Flodur Corporation, Dept. CP, 331 Frankfort Ave., Cleveland, O. When inquiring specify CP 5715 on handy form, pages 2 and 3.

★

1/2 to 2" Y-type Pipe Strainers Handle Steam, etc., to 250 psi

1/2 to 2" cast semi-steel Y-type pipe strainers for steam, gas, air, water and oil lines up to 250 psi are shown and described in a recent folder.

Specifications are tabulated both for strainers with perforated brass and fine mesh, woven stainless steel screens. Bulletin 184, issued by Armstrong Machine Works, Dept. CP, Three Rivers, Mich. When inquiring specify CP 5716 on handy form, pages 2 and 3.



Thousands of installations and the outstanding results obtained in controlled tests have amply attested the values of FARRIS Safety Relief Valve design.

Certified tests have proved the consistent superior capacity, the tightness—the result of the 2½ to 1 guiding ratio, assuring full lift and positive reseating. Maintenance men testify to the ease and economy of replacing the loose disc—with a minimum of down time, with no special tools, without the usual problems of trick lapping, difficult machining and factory supervision for adjustment.

Other features include: double universal joints in alignment spool—long, low-stressed, protected loading spring—full certified capacity discharge assured by nozzle throat and high disc lift—spring chamber kept vapor-tight with guide seals—viscous materials kept fluid by internal coil. In all, 15 FARRIS "Exclusive" features provide the design and quality that have made FARRIS performance which has built complete acceptance.

SEND FOR YOUR COPY
New FARRIS Catalog just out.

If you are piping corrosive liquids, vapors or gas, investigate this and other FARRIS Valves.

FARRIS ENGINEERING CORP.

406 Commercial Ave.
Palisades Park, N. J.

Farris
SAFETY and RELIEF VALVES

FARRIS keeps pace with advancing power and process engineering

1722

When inquiring check CP 5717 on handy form, pgs. 2-3



FOR
All-round
PURITY ...

BARNSTEAD Distilled Water

There's only one way to equal laboratory results in the plant . . . and that is to match laboratory standards. BARNSTEAD Industrial Stills do just that. You can be sure of the results every time, because a Barnstead removes not only one kind of impurity but ALL kinds . . . giving you a sterile distillate of the highest chemical and bacteriological purity. A Barnstead Water Still removes:

- Organic Solids
- Inorganic Solids (including silica)
- Bacteria
- Pyrogens
- Gaseous Impurities

Barnstead
STILL & STERILIZER CO. INC.

66 LANESVILLE TERRACE, FOREST HILLS, BOSTON 31, MASS.

When inquiring check CP 5718 on handy form, pgs. 2-3

New Literature

Color Code Identifies Pressure Ratings of Ball Bearing Swivel Joints

48-page, 3-color catalog covers ball-bearing swivel joints and fabricated products. Cutaway views show design and construction of basic types. Packing units are fully illustrated and described. Weights and dimensions for all joints are shown. Specifications, servicing and lubrication instructions are included. Malleable iron, bronze, aluminum, steel castings and forgings are listed as construction materials.

A color code for easy identification of each type of swivel joint, according to its pressure capacity, is introduced. Capacities range from 125 psi to 12,000 psi in eight different styles of joints. Full 360° rotation in 1, 2 and 3 planes. Literature includes 2 pages showing typical loading rack designs.

Catalog 48, issued by the Chiksan Company, Dept. CP, Brea, California. When inquiring specify CP 5719 on handy form, pages 2 and 3.

★

Midget Hydraulic Unit Provides 100 psi for Pulling, Pushing, Lifting Jobs

Midget-size hydraulic unit, for use wherever push, pull or lift is required, is described in literature. Number of installations on tractors, loaders, dump wagons, etc. are shown, along with large photographs of unit. Performance data are tabulated. "Ten Ton Tony" measures 6" x 7" x 9" overall. 3 gal. of oil per minute at 1200 rpm at 1000 psi, or 4 1/2 gal. per minute at 1800 rpm at 1000 psi. Requires approximately 2 1/2 hp to operate at 1200 rpm. Operates by V-belt drive. Remote control through flexible or stationary linkage that leads to lever conveniently near operator.

Unit is made by specialists in manufacture of hydraulic pumps, valves, power units, and controls. Issued by Hydro-Power, Inc., Subsidiary of the Hydraulic Press Mfg. Co., Dept. CP, Belmont and Sheridan Avenues, Springfield, Ohio. When inquiring specify CP 5720 on handy form, pages 2 and 3.

★

Metal Liquefied-Gas Containers With Casings Furnish Safe, Efficient Storage, Handling

1000, 500, 100 and 5 liter metal liquefied-gas containers and casings, for storing and handling, are illustrated and described. Sizes for any need, from 2 to 3000 liters, are available. Method of spring suspension of container in casing is shown. Included are picture and description of efficient liquid hydrogen container, stainless steel Dewar flasks. Specially built explosion-proof container is pictured. Advantages in design of the various containers and flasks are enumerated.

Issued by Hofman Laboratories Inc., Dept. CP, 212 Wright St., Newark 5, N.J. When inquiring specify CP 5721 on handy form, pages 2 and 3.

★

Complete Line of Protective Gloves, Suits, Aprons Described in Bulletin

"Whale-Hide" synthetic gloves, offered in seven weights, provide better resistance to chemicals and solvents, manufacturer states. Possess excellent gripping qualities and snag resistance. Featherweight glove is

Peerless



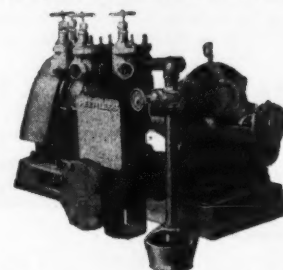
Fire Pumps
Underwriters' Approved
Horizontal & Vertical Types

For a
Permanent and Reliable Water Supply For Fire Protection . . .

What This Approval Means To You:

In specifying Peerless Fire Pumps you're assured of meeting requirements of both your local fire code and the firm which writes your insurance. A Peerless installation may also mean a worthwhile reduction in your fire insurance rates.

HORIZONTAL CENTRIFUGAL TYPE*

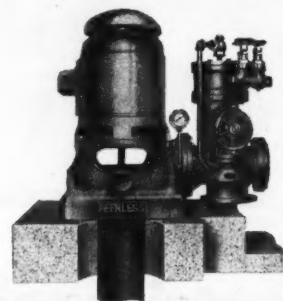


Built for instant, reliable operation. Fully automatic, minimum maintenance required. Made for motor, engine, or steam turbine drives.

Capacities: 500 to 2000 g.p.m.; heads: 40 to 150 lbs.

*Formerly Dayton-Dowd

VERTICAL TURBINE TYPE



Especially suited to pumping water supply from wells, tanks, lakes, rivers or sumps. Compact design. Choice of oil or water lubrication. Approved types of drive include electric, right angle gear, or steam turbine. Capacities: 500 to 2000 g.p.m.; heads: 240 to 285 ft. or higher.



Request Descriptive Bulletin

PEERLESS PUMP DIVISION

Food Machinery Corporation

Factories: Los Angeles 31, Calif.; Quincy, Ill.; Indianapolis, Ind.
District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 No. Broadway; Atlanta Office: Rutland Bldg., Decatur, Ga.; Dallas 1, Texas; Fresno, Calif.; Los Angeles 31, Calif.

When inquiring check CP 5722 on handy form, pgs. 2-3

For Easy Control
and Quick Shut-off
of AIR · GAS · FLUIDS

INSTALL

ROCKWELL SLIDE VALVES BUTTERFLY VALVES

STANDARD SLIDE VALVES

Threaded or flanged; 1" to 20" pipe sizes; pull handle, lever or wheel control; manual or automatic remote control; built of any metal. Full flow, easy operation, simple to install in any line.



"KWIKLEEN" SLIDE VALVES

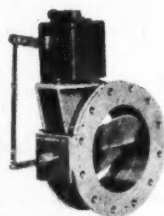
For Gases containing Solids—Easy to Clean without Removing from Line

Remove bottom plate, and dirt or solids drop or are blown out of sediment chamber; 1" to 16" pipe sizes; hand lever, hand wheel, chain wheel or special manual controls.



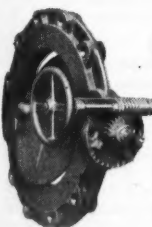
BUTTERFLY VALVES Manual or Automatic

Full, unrestricted flow of gases or fluids and quick, positive, accurate regulation and shut-off; 1" to 72" pipe sizes; of any metal; all manual, also automatic and power-operated remote controls.



WAFER BUTTERFLY VALVES For Tight Spots in Pipe Lines

Rugged yet lightweight; require only 1 set of bolts; 4" to 72" pipe sizes; all manual and automatic remote controls.



New "Tells All" Catalog
Yours for the Asking.

W. S. ROCKWELL COMPANY

220 Elliot St. Fairfield, Conn.

When inquiring check CP 5723
on handy form, pgs. 2-3

New Literature

an exceptionally light-weight, but tough glove for uses where dexterity and sense of touch are important.

Synthetic and neoprene coated gloves, pure gum gloves, white synthetic and black neoprene aprons, rubber cushion knee pads, synthetic sleeves, and two-piece rubber suits are completely described. Sizes available are listed. Hazards that products will protect against are pointed out in most cases.

This 4-page bulletin is issued by the Industrial Products Company, Dept. CP, 2820 N. Fourth St., Philadelphia 33, Pa. When inquiring, specify CP 5724 on handy form, pages 2 and 3.

Combination Starter Offers Protection for Synchronous, Induction Motors, 2300-4600 V

Colored, 8-page booklet describes high-voltage, fused, combination starter control for synchronous and induction motors from 2300 to 4600 volts. Large photographs show construction of control, and heavy-duty oil switch, used in control, especially built for motor starting. Diagrams and text illustrate how the high-interrupting-capacity fuses provide sure short-circuit protection. Controls are readily adaptable for group line-up.

Publication 192, issued by the Electric Machinery Mfg. Company, Dept. CP, Minneapolis 13, Minn. When inquiring specify CP 5725 on handy form, pages 2 and 3.

Static, Dynamic Pressure Variations Measured, Indicated By Electronic Equipment

Electronic equipment is used to measure and indicate static or dynamic pressure variations. Can be synchronized with pumps, internal combustion and diesel engines, etc. Descriptions, applications and specifications are included with illustrations of equipment and typical pressure-time graphs. A page is devoted to case histories including design check on oil filters, diesel injection timing, etc.

Issued by the Electro Products Laboratories, Dept. CP, 549 W. Randolph St., Chicago 6, Ill. When inquiring, specify CP 5726 on handy form, pages 2 and 3.

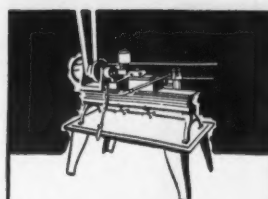
Flexible Monel Tubing Withstands 420 to 6800 psi, 525 and 800° F.

Complete descriptions of the physical properties and corrosion-resistant characteristics of monel flexible tubing, in flat-ribbon or round-wire braid, are contained in a 6-page, pocket-size folder. Working pressures of 420 to 6800 psi, with high safety factor allowed, are tabulated, also top working temperatures of 525 and 800°F.

Issued by Titeflex, Inc., Dept. CP, 600 Frelinghuysen Ave., Newark 5, N. J. When inquiring specify CP 5727 on handy form, pages 2 and 3.

Offers Free Washroom Maintenance Service

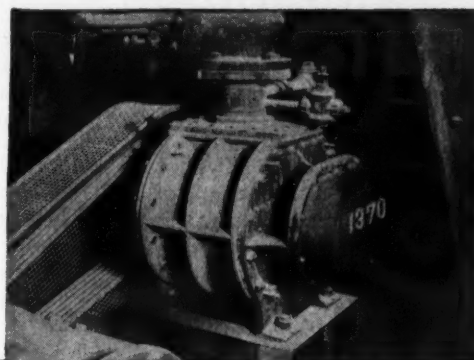
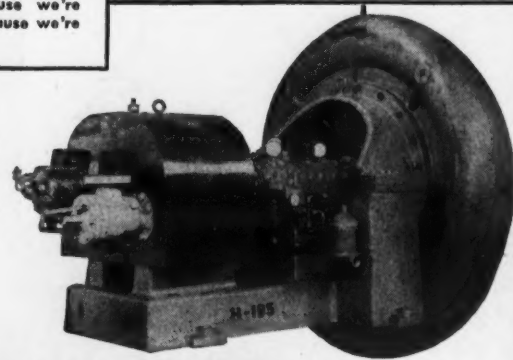
Manufacturer's free washroom maintenance service, covering all phases of modern washroom sanitation, is described in a 12-page illustrated brochure. System entails periodic service calls by a trained service man. "An Ideal Washroom Maintenance Service," issued by West Disinfecting Company, Dept. CP, 42-16 West St., Long Island City 1, N. Y. When inquiring specify CP 5728 on handy form, pages 2 and 3.



The first successful turret lathe and the first Roots Blower were built in the same year . . . 1854. We're not good because we're old, but old because we're good.

*Exclusive
Service...
R-C dual-ability*

Type OIB, R-C
Centrifugal Gas
Exhauster in chemical
plant service.
Capacity 14,500
CFM.



Special R-C Rotary
Positive Blower,
handling 225 CFM
of CO₂ gas, at 5
lbs. pressure, in
chemical plant.

You obtain an important, exclusive advantage when you consult us about problems of moving air or gas. That is, our *dual-ability* to supply either Centrifugal or Rotary Positive units.

This *dual choice* allows you to match equipment exactly to your needs, in capacities, pressures and other characteristics. You can have standard Rotary Positive units from 10 CFM up to 50,000 CFM, or Centrifugal units from 2,000 CFM up to 100,000 CFM.

So, utilize this exclusive *dual-ability* by consulting us on all your blower and gas pump requirements. The economy and dependability of R-C Blowers have been proved for almost a century.

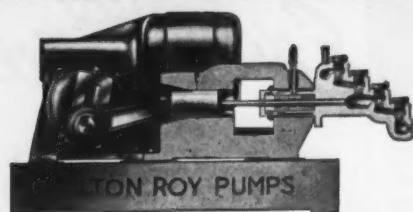
ROOTS-CONNERSVILLE BLOWER CORPORATION
806 Richland Avenue, Connerville, Indiana

ROOTS-CONNERSVILLE
ROTARY CENTRIFUGAL

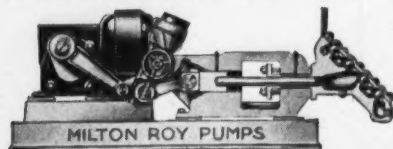
BLOWERS · EXHAUSTERS · BOOSTERS · LIQUID AND VACUUM PUMPS · METERS · INERT GAS GENERATORS

ONE OF THE DRESSER INDUSTRIES

When inquiring check CP 5729 on handy form, pgs. 2-3



Stroke Adjustment—Screw. Liquid End—Alloy.



Stroke Adjustment—Micro while running. Liquid End—Cast Iron, cover plate design.

MILTON Roy CHEMICAL PUMPS

For Accurate Control of Volume

Milton Roy Pumps are positive metering units for controlled volume pumping in which the length of the plunger stroke is quickly and easily adjusted to regulate the volume of liquid pumped. Precise control in pumping small volumes is thus made possible, down to as little as 1 pint per hour.

Milton Roy Pumps handle difficult materials—slurries and solids in suspension, viscous liquids, solvents, hot or cold oils, other materials too difficult or perhaps impossible to pump by other means.

Liquid ends of Milton Roy Pumps are supplied in any metal or alloy that can be cast and machined, also in certain plastics materials, to meet practically all corrosion resistance requirements.

Milton Roy Pumps are high pressure pumps, up to 20 thousand psi, for high pressure catalysis, hydrostatic testing and similar applications.

Investigate the pump that is tailor-made for each specific purpose—to handle materials in exactly controlled volume. Ask for Catalog No. 146.



MILTON Roy COMPANY

1310 E. MERMAID LANE, CHESTNUT HILL, PHILA. 18, PA.

When inquiring check CP 5730 on handy form, pgs. 2-3

Page 70

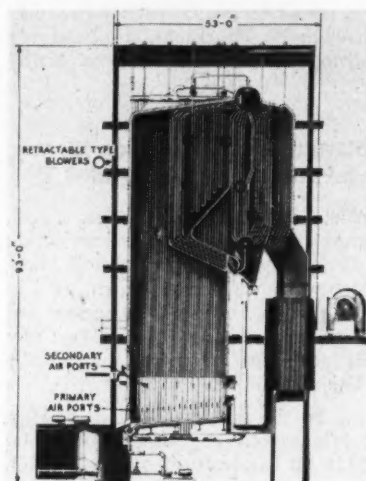
Processing Equipment

Black Liquor Heat Recovery Unit Affords Increased Steam

Treats more liquor per unit of surface; reduces cleaning time; used in sulfide plant

USES — Improved recovery system is used in sulfide paper pulp plant to obtain heat from combustion of the organic constituents in the black liquor for the production of steam. The spent sodium salts are recovered as smelt. Furnace also reduces the sodium sulfate content of black liquor to sodium sulfide. Smelt, composed largely of sodium carbonate and sodium sulfide, is dissolved in water to form green liquor.

New type black liquor recovery unit showing clean-out locations (black circles)



Green liquor is causticized to convert the sodium carbonate to hydroxide; liquor is then ready for re-use as cooking liquor in digester.

FEATURES — Increased capacity of recovery unit, obtained through higher steam production per unit of black liquor treated. This permits reduction in operating personnel because fewer units are needed, lower installation costs because of reduced floor-space and building costs, and reduced cost per ton of capacity on larger recovery units.

Reduction in cleaning labor is obtained through design improvements which minimize formation of deposits on tubes, and by use of retractable mechanical soot blowers applied through strategically-located clean-out ports.

Incorporation of gas-air heater permits higher net steam generation and aids in more stable furnace operation. Net steam generation is considered to be the steam generated by the recovery unit less the steam consumed by the black liquor multiple-effect evaporators and liquor heaters.

DESCRIPTION — Briefly, the principle of operation follows: black liquor is concentrated in multiple-effect evaporators and a direct-contact evaporator. The concentrated solution is treated with salt cake (sodium sulfate) and then burned in the recovery furnace to produce steam in boilers which feed the multiple-effect evaporators and liquor heater; flue gases heat the direct-contact evaporator. In manufacturer's method, the solution is sprayed on the furnace walls for dehydration prior to final combustion of dried char, or smelt, on furnace hearth.

Combustion air, from pre-heater which is part of unit, is introduced through primary and secondary ports. Volume fed through primary ports is kept below theo-

retical so a reducing atmosphere prevails in bottom of furnace. Secondary ports inject air necessary for complete combustion.

In 1937, the largest installed recovery unit of manufacturer had a capacity of 130 ton/day. Today, units up to 275 ton/day are in operation and two 350 ton/day units are under construction. Capacity expressed as "ton/day" is equivalent to burning the black liquor obtained from this tonnage of pulp production per day and assumes that 3000 lbs. of black-liquor solids are obtained per ton of pulp produced.

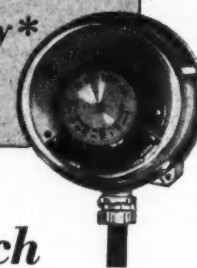
The new units have improved boiler and economizer design and, while requiring less floor-space, are much taller than older units. Air infiltration to boiler setting has been reduced. This results in lower excess air at outlet of unit and less load on such subsequent equipment as the induced-draft fan and precipitator.

Cleaning labor has been reduced by a combination of several design features: (1) improved design of boiler screen and superheater sections to provide reverse gas flow and more uniform and lower gas temperatures across tubes in these sections, facilitating return of hard chemical deposits to furnace for remelting; (2) lowering of secondary air ports to permit maximum time for complete combustion of char particles entrained in furnace gases before they can rise, stick to tubes of boiler screen and superheater, and form hard smelt deposits.

Other features: (3) changes to allow lower flue gas weights per ton of capacity in cooler zones, thus minimizing hard packing of deposits in these zones due to high

to save money*
... save time

use this
GE time switch



*Increase your profits by eliminating waste, and reducing costs with a General Electric TSA-14 automatic time switch. This dependable time switch is easily installed and adjusted. Its automatic cyclic action frees your operators for more productive work, often doubles output.

FOR DEPENDABLE OPERATION OF . . .

Pumps
Ovens
Signals

Agitators
Flashing signs
Mixing valves

Blowers
Exhaust fans
Lights

It also has many other industrial applications like allowing motors to slow down before reversing, or dipping materials at certain intervals.

The weather-resistant case safely houses a reliable Telechron motor which ensures accurate operation for years. The low installation and maintenance costs further increase your savings. Bulletin GEA-2963 will give you more details. Write for your copy today. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

Reg. U. S. Pat. Off.

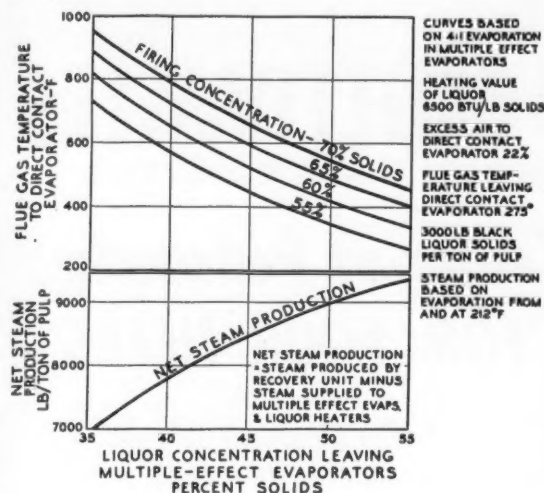
GENERAL ELECTRIC

When inquiring check CP 5731 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

velocities (reduction of air infiltration to boiler setting has accomplished this); (4) better layout of cleanout ports and use of retractable-type mechanical soot blowers; and (5) use of parallel air flow in air heater, instead of counter-flow, which minimizes formation of deposits caused by condensing water vapor in flue gases combining with the chemical dust.

Incorporation of gas-air heater makes possible gas temperatures of 450-500° F. to direct-contact liquor evaporator, compared to 600-700° F. on units without gas heaters. Firing concentrations to recovery units usually should be



Curves showing how lower flue gas temperatures to direct-contact evaporator increase net steam production

in the range of 55-70% solids; lower values will not support combustion and higher values cause high-viscosity handling problems. The net steam production increases as liquor concentration leaving multiple-effect evaporators (or fed to direct-contact evaporator) becomes greater.

Based on a given gas temperature leaving the direct-contact evaporator, and a given liquor concentration from the multiple-effect evaporators, the liquor firing concentration is governed by the gas temperature to the direct-contact evaporator. If this temperature is too high, the firing concentration will exceed the accepted firing concentration. A study of the graphs will show that, the lower the gas-temperature to the direct-contact evaporator (within limits), the higher can be the liquor concentration from the multiple-effect evaporators and, therefore, the net steam production.

SOURCE—This improved recovery unit is a development of The Babcock and Wilcox Co., Dept. CP, 85 Liberty St., New York 6, N. Y. . . . or for more information check CP 5732 on handy form, pages 2 and 3.

★

Offers Laboratory Analyses to Determine Magnetic Separation of Materials

How to arrange for free laboratory analysis of a material to determine if, and how best, it can be magnetically separated, is told in a 4-page bulletin. Literature includes views of manufacturer's laboratory for magnetic analyses, lists some of the many materials which have been thus tested, and describes benefits to industry.

Bulletin 1120, issued by Dings Magnetic Separator Company, Dept. CP, 4740 W. McGeogh Ave., Milwaukee 14, Wis. When inquiring, specify CP 5733 on handy form, pages 2 and 3.

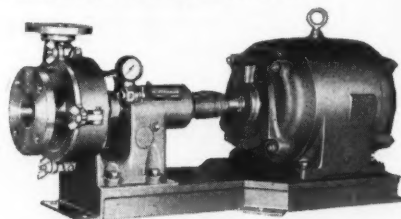
JUNE, 1948

NEW stainless steel RECESSED-END fittings form low-cost, corrosion-resistant conveying lines

fast, simple
**SOLDERING
OR SOCKET
WELDING...**



TRI-CLOVER RECESSED-END fittings meet the demand for a complete line of low-cost stainless steel units which can be quickly assembled with lightweight tubing to form dependable corrosion-resistant liquid conveying lines. Available in sizes from 1" through 10" O. D., these high-strength fittings require no special installation technique...any one of three standard methods may be used—brazing, soldering or welding, to form permanent or semi-permanent lines. Check the features at the right and you will see why **RECESSED-END** fittings provide the answer to greater protection against corrosion and contamination, at lower installation and maintenance cost.



TRI-CLOVER INDUSTRIAL PUMPS

Now available in a complete range of sizes and capacities up to 1250 GPM and up to 250 ft. head at Zero GPM. Highest quality corrosion-resistant construction. Fast, non-clogging centrifugal action with special seals for practically every requirement. Endorsed by users throughout chemical-process and allied industries. SEND FOR CATALOG 248.

★ **RECESSED-END** fittings are available from stocks of Tri-Clover Jobbers in all sections of the country. Call or write for descriptive CATALOG 948.

★ **A COMPLETE LINE**—including Elbs, Tees, Crosses, Return Bends, Reducers and Adapters.

★ **STREAMLINED DESIGN**—free flow, friction reduced to a minimum. Less space required. Completely porosity-free.

★ **FABRICATED IN 3 TYPES**—available in stainless steel type 304, 347 and 316, to meet wide corrosive conditions.

★ **SAVE UP TO 65% IN MATERIAL**—due to savings in "dead metal" as compared to heavier iron pipe size fittings, yet without loss of strength.

★ **AVAILABLE IN 2 FINISHES**—pickled or polished finish, with any combination of I. D. or O. D. finish required. All fittings fully annealed and passivated.

★ **READILY ADAPTABLE TO OTHER FITTINGS**—through the use of standard adapters, **RECESSED-END** fittings are easily adapted to virtually every other known type of fitting.

NOTE: TRI-CLOVER RECESSED-END fittings meet the special requirements of breweries, distilleries and wineries by providing a sealed joint approved by the Dept. of Internal Revenue.

**Tri-Clover
MACHINE CO.**

Kenosha, Wisconsin

TRI-ALLOY AND STAINLESS STEEL
SANITARY FITTINGS, VALVES,
PUMPS, TUBING, SPECIALTIES



FABRICATED STAINLESS STEEL
INDUSTRIAL FITTINGS AND
INDUSTRIAL PUMPS

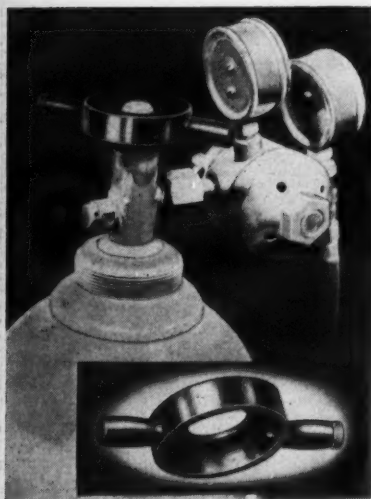
THE Complete LINE

When inquiring check CP 5734 on handy form, pgs. 2-3

Processing Equipment

Easily Opens Cylinder Valves, Closes Them Tighter

Prevents leakage of gas or air, and frayed "tempers" when trying to open sticking valve



Installation and closeup of valve opener

USES — Device for easily opening valves on compressed gas cylinders.

FEATURES — Simple, inexpensive. Saves air or gas because cylinders can be more tightly closed. Also eliminates frayed "tempers" of operator when trying to open tightly-closed valve.

DESCRIPTION — One-piece casting, readily fitted over standard cylinder valve and securely fastened by knurled set screw. No need to use a wrench to open valve.

SOURCE — The "E-Z-Opener" is made by the Nutmeg Industries, Dept. CP, 45 Deacon St., Bridgeport 7, Conn. . . . or for more information check CP 5735 on handy form, pages 2 and 3.

Air Valve Raises, Lowers or Holds

3-way, neutral position unit fits $\frac{3}{8}$ and $\frac{1}{2}$ " pipe; up to 250 psi

USES — 3-way, neutral position, hand-operated air valve for use with single-acting air cylinders.

Especially for use with hoists or other application where it is desired to raise, lower and hold the load in intermediate position.

FEATURES — Capable of indexing



MORE MULTIWALLS

New Kraft Center at Pensacola BUILT FOR YOUR NEEDS

It's working for you now—the largest integrated operation of its kind! Pensacola's new Kraft Center combines the output of two kraft mills—Florida Pulp and Paper Company and Alabama Pulp and Paper Company (both wholly owned St. Regis subsidiaries) with the output of the new St. Regis multiwall bag plant.

This is further evidence of our earnest wish to serve the demands of the many basic industries which have adopted St. Regis multiwall paper bags. We cannot yet promise you all the bags you want, exactly when you want them. But we are steadily moving toward that goal.

Pensacola's new Kraft Center is a big step forward. From trees to pulp . . . to kraft paper . . . to multiwall bags . . . in one contin-



+ MULTIWALL . . .

ST. REGIS

FOR INDUSTRY!

uous flow! And because fast growing Southern pine is a crop—there is no danger of shortage.

The Pensacola development was built for you! Day in, day out, it is working to supply you with the multiwalls you need for modern, efficient packaging.

There is a St. Regis sales office near you. Consult them about bag deliveries and for recommendations as to St. Regis packers.

SALES SUBSIDIARY OF **SK** ST. REGIS PAPER COMPANY
ST. REGIS SALES CORPORATION
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NEW YORK 17: 230 Park Ave. • CHICAGO 1: 230 No. Michigan Ave. • BALTIMORE 2: 1925 O'Sullivan Bldg.
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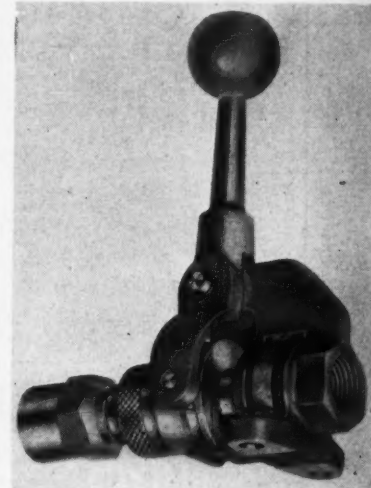


Packaging Systems

Processing Equipment

and holding handle in neutral or hold position. Compact and strong.

DESCRIPTION — In $\frac{3}{8}$ and $\frac{1}{2}$ " pipe sizes for air pressures up to 250 psi. Model 1291-N3.



3-way air valve

Forged bronze handle and head, brass sleeve, stainless steel body and adapter. A flat spring on head indexes and holds handle mib in "on" or "off", "hold" or "neutral" position. Dimensional data sheet contains full specifications.

SOURCE — C. B. Hunt & Son, Inc., Dept. CP, Salem, O., is the maker. . . or for more information check CP 5736 on handy form, pages 2 and 3.

★

Offers Remedies for Bearing Wear

"Relief from Bearing Wear Grief" is the subject of a 24-page color booklet describing the functions of flexible couplings in preventing downtime losses due to improper coupling of rotating shafts.

Literature describes how flexible couplings compensate for end thrust and 3 types of shaft misalignment. Describes maintenance of this coupling and how its life can be renewed at minimum cost in downtime and labor. Price, \$1. Remit direct to American Flexible Coupling Company, Division of J. A. Zurn Mfg. Company, Dept. CP, Dept. C-1, Erie, Pa. Or, when inquiring, specify CP 5737 on handy form, pages 2 and 3.

For more information on product advertised at left, specify CP 5738 . . . use information request blank between pages 2-3.

SPECIALISTS get better results ... in architecture and in VALVE MANUFACTURE



Aloyco
Series 600
Gear
Operated
Gate Valve
with By-Pass



The architect who designs a good industrial plant must have different qualifications from the architect who designs a good home. This is true also of valve manufacture. The best corrosion-resistant valves are made by the manufacturer who SPECIALIZES in valves of corrosion-resistant alloys. Aloyco handles nothing but stainless steels and related alloys — AND MAKES NOTHING BUT VALVES. Because of the many years we have devoted to our specialty, we can assure our customers of the very finest in corrosion-resistant valves. Consult our engineers on your requirements.

ALLOY STEEL PRODUCTS COMPANY, INC.
1302 W. Elizabeth Avenue
Linden, N. J.

ALOYCO
Stainless Steel
VALVES and FITTINGS

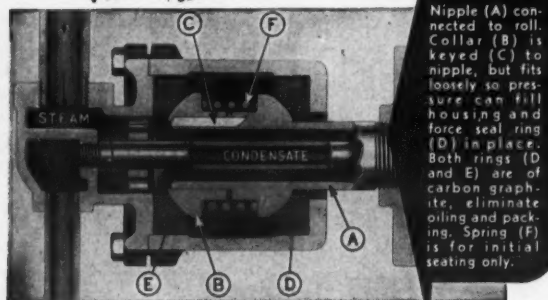
GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
SAMPLING VALVES • ANGLE VALVES
TANK VALVES
FLANGES, SCREWED and WELDING FITTINGS
GAUGE GLASS FITTINGS

When inquiring check CP 5739 on handy form, pgs. 2-3

Help FOR YOUR STUFFING BOX PROBLEMS . . .

Getting steam or liquids into rotating machine parts used to mean a lot of trouble with stuffing boxes and steam fits. The Johnson Joint has changed all that. It's completely packless, self-oiling, self-adjusting and even self-aligning. Industry is finding new uses for it every day. Type B illustrated provides for condensate removal; other styles and sizes for all needs. Write for details.

THE JOHNSON CORPORATION
826 WOOD ST., THREE RIVERS, MICH.



Nipple (A) connected to roll. Collar (B) is keyed (C) to nipple, but fits loosely so pressure can fill housing and force seal ring (D) in place. Both rings (D and E) are of carbon graphite, eliminate oiling and packing. Spring (F) is for initial seating only.

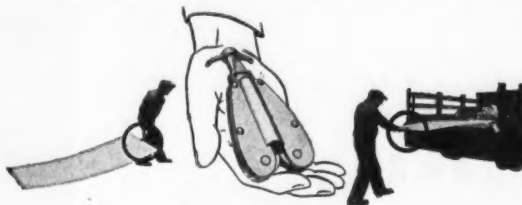
JOHNSON Rotary Pressure JOINTS

When inquiring check CP 5740 on handy form, pgs. 2-3

Processing Equipment

Palm-size 1-man Clamp Grips, Pulls Sheet Metal from Pile

28-oz., 6 x 3-1/2" device used by shop men,
unloaders; also attaches to conveyors



Finger Grip clamp

USES — "Strong Finger Grip" clamp for shop men and individuals handling sheet metal, plates or flat-surfaced objects. Also furnished with an eye, in place of hand handle, for attachment to conveyor systems or mechanical lifting devices. For unloading operations.

FEATURES — Using this palm-size tool, one man can grip a sheet, extract it from a pile, and quickly, easily drag it where desired. The harder the pull, the tighter it grips. DESCRIPTION — 6" long by 3-1/2" wide. Weight, 28 ozs. Convenient handle bar permits carrying between first and second fingers. Made entirely of steel forgings. Operates on 2-way wedge-and-level fulcrum principle.

SOURCE — Produced by Merrill Brothers, Dept. CP, Maspeth, N. Y. . . or for more information check CP 5741 on handy form, pages 2 and 3.

★

Nozzle Squelches Liquid Fires with Fogs of Foam or Water

Also expels solid foam stream; fits hose or
works automatically from pipes



Nozzle with FogFoam screen

or other stubborn flammable liquid fires. Developed originally to protect US Navy carriers from attacks by suicide planes.

FEATURES — Applies "FogFoam," "WaterFog" or long range solid foam stream, all from the same nozzle, but with different attachments.

DESCRIPTION — Type FFF nozzle, equipped with FogFoam screen (see illustration), discharges a wide pattern that can be applied directly to liquid fires. Equipped with a foam shaper, the same nozzle discharges a long range

USES — For extinguishing flammable liquid fires in industrial plants, oil refineries, etc. For use with 1-1/2, 2-1/2 and 3-1/2" hose, or in the form of automatically-operated, permanently-piped systems.

For combatting gasoline, benzol

INTERNATIONAL

PORTABLE MIXERS
MEDIUM and HEAVY DUTY. Modern Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

PERMANENT MIXERS
With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

DRY BLENDEES, AUTOCLAVES, KETTLES AND DIGESTERS

IRON MIXERS
Belt or Motor Driven.

CATALOG
On Mixers, Agitators, Blenders, Blenders, Mixers, etc. No. 110. Now ready.

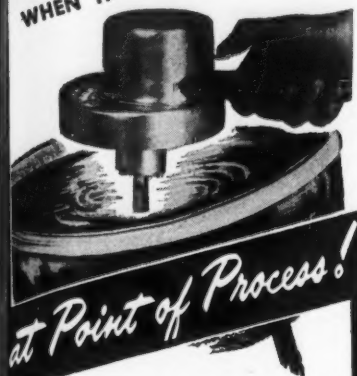
CATALOG No. 85
on BALL MILLS—Either catalog or both sent on request.

INTERNATIONAL ENGINEERING, INC.
Dayton 1, Ohio.

NEW YORK, 15 Park Row • CHICAGO, 407 S. Dearborn
LOS ANGELES 4, 150 N. MORTON AVE.

When inquiring check CP 5743 on handy form, pgs. 2-3

Test Viscosity
WHERE IT COUNTS THE MOST
WHEN IT COUNTS THE MOST



WITH A
BROOKFIELD
SYNCHRO-LECTRIC
VISCOMETER

At last, Point of Process Viscosity readings are not only practical, but simple, rapid, and accurate as well. The Brookfield Viscometer is portable and plugs into any ordinary electrical outlet for connection. Operation is completely automatic and readings are given directly in centipoises.

**ONLY A BROOKFIELD HAS
ALL THESE ADVANTAGES**

- Portable — use in lab and plant
- Rapid — readings in 30 seconds
- Accurate — within 1% of range
- Simple — no technical knowledge to operate or to read
- Rugged — built to take plant handling without getting out of order.

BROOKFIELD
ENGINEERING LABORATORIES, INC.

210 Porter Street, Stoughton, Mass.

Please send me your new 8 page booklet describing and illustrating the various Brookfield Models and their uses.

Name
Company
Address
City State

When inquiring check CP 5744 on handy form, pgs. 2-3

Processing Equipment

solid foam stream. Or, by shutting off foam liquid supply, it discharges a high velocity WaterFog.

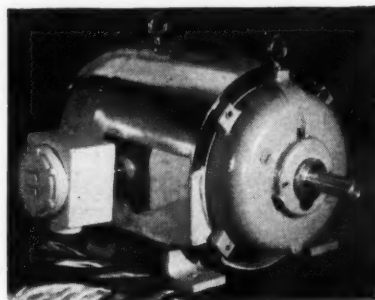
A foam eductor, consisting of short lead-in hose and connections, connects between two lengths of fire-hose to supply 6 parts foam liquid to 94 parts water for use with this nozzle. Mixture flows in liquid form from eductor, through hose to nozzle, and does not expand into foam until leaving nozzle. In effect, this assures "as much, or greater," fire extinguishing power from a 1-1/2" hose line than is possible with 2 1/2" hose used with conventional equipment, according to manufacturer.

Manufacturer also reports that, used with a 2-1/2" hose, the nozzle gives "far greater and faster extinguishing action" on gasoline, benzol, etc., than previously possible "with any size hose line."

SOURCE — Manufactured by Rockwood Sprinkler Company, Dept. CP, 38 Harlow St., Worcester 5, Mass. . . or for more information check CP 5745 on handy form, pages 2 and 3.

**AC Motor for Chemical Plants
Resists Corrosion, Explosion**

Meets Underwriters' standards for use despite gasoline, oil, naphtha, alcohols, acetone, etc.



Corrosion-resistant chemical motor

USES — AC motor for general application in chemical plants despite hazardous conditions such as gasoline, oil, naphtha, alcohols, acetone, lacquer solvent vapors and natural gas.

FEATURES — Corrosion and explosion-resistant. Built to

standards of Underwriters' Laboratories for operation in Class I-Group D locations. With addition of a multi-conductor cable, rubber hose and suitable packing glands, it meets specifications of Bureau of Mines for use on "permissible" equipment, manufacturer reports.

DESCRIPTION — Available in frame sizes 203 through 326. Monel metal replaces steel in outer cover, fan cover, and in lead outlet, where usual steel channel is replaced as lead enclosure with monel pipe nipple going directly into inner enclosing shell.

Cast bronze replaces cast aluminum in fan. Extra grease and bearing protection is afforded by addition of bronze shaft collars. Brass replaces steel in grease pipes, also in screws retaining fan cover. Since bolts holding outer fan are partially protected and readily replaced, they are cadmium-plated steel.

Conduit box, instead of being pressed steel, is fine-grained cast iron.

SOURCE — Produced by The Reliance Electric & Engineering Company, Dept. CP, Cleveland, O. . . or for more information check CP 5746 on handy form, pages 2 and 3.

**The SCREEN of the
YARWAY STRAINER**



**MAKES PIPELINES
*Lifelines***

- The heart of a strainer is its screen . . . and the screen in Yarway Strainers keeps pipelines open . . . prevents rust, scale and dirt from clogging equipment.
- Screens are of high-grade monel woven wire, fine enough for required straining service, yet having ample free area for passage of clean condensate, light oil or other fluids. Perforated screens if desired.
- Screen cap is made with straight thread, machined face and spark-plug-type gasket for attachment to body. Permits easy removal for cleaning. Insures proper alignment of screen when it is replaced in body.
- Body of Yarway Strainer is iron or steel, cadmium-plated for protection against corrosion and for better appearance.
- Available in six sizes, 1/2" to 2", for pressures to 600 lbs. Stocked and sold by 150 Mill Supply Houses. Reasonably priced.
- Hundreds of thousands in use. See your nearest dealer, or write for Bulletin S-201.

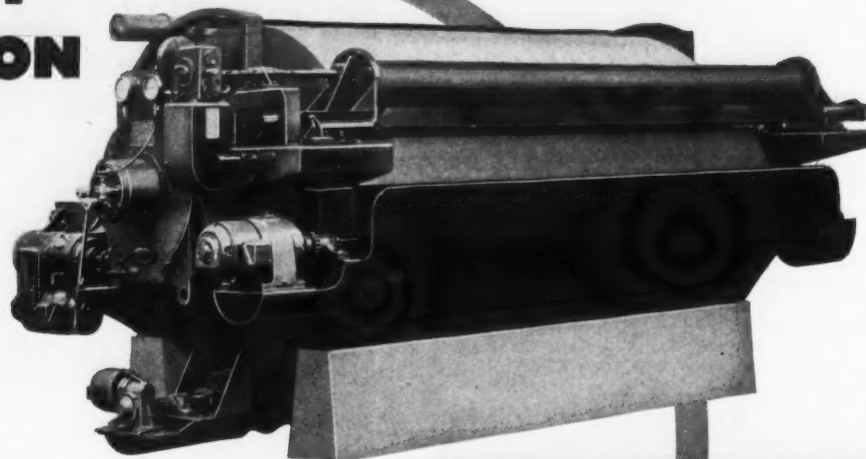
YARNALL-WARING COMPANY
125 MERMAID AVENUE PHILADELPHIA 18, PA.

YARWAY STRAINERS
"Police the Pipelines"

When inquiring check CP 5747 on handy form, pgs. 2-3

OLIVER "PRECOAT" FILTRATION

Often
the Best for
"Hard-to-Filter"
Solutions



We're talking now about continuous vacuum filtration in contrast to batch pressure filtration which, until recently, had to be used on all such solutions. Today, the story is different. Today, by means of the Oliver Precoat Filter, continuous vacuum filtration can be used on most "difficult-to-filter" solutions...and to great advantage.

If you are handling such solutions on batch pressure filters with their attendant heavy manual handling and general messiness, investigate the Oliver Precoat Filter and its possibilities for helping to reduce your filtering costs.

The way the Precoat Filter works is briefly this: first a thick cake of a pervious filter medium or precoat is built up on the drum (taking an hour or two); then the solution to be filtered is fed into the tank or vat while keeping the drum rotating and the vacuum on. The thin film of solids forming on the surface is shaved off continuously, always leaving a fresh surface of precoat for further cake deposition. In this way the cake never gets thick enough to retard or stop the flow of filtrate. That's why the Oliver Precoat can handle those "difficult-to-filter" solutions. Actual filtering cycles last from several days to several weeks continuous operation, depending upon how much precoat has to be removed each revolution.

*Solutions with Sticky Solids

*Solutions with Small Amounts of Solids

*Solutions requiring High Polish

OLIVER UNITED FILTERS

New York 18, N. Y.
33 West 42nd Street

San Francisco 11,
California

Chicago 1, Ill.
221 N. LaSalle Street
Western Sales Division
Oakland 1, California
2900 Glascock Street

Sales and Manufacturing Representative:
E. Long Limited
Orillia, Canada

Factories: Oakland, Calif. • Hazleton, Pa. • Orillia, Canada • Melbourne, Australia

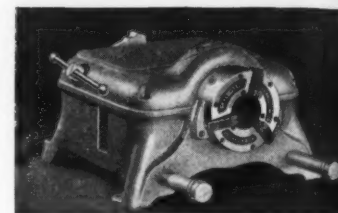


inc.

Processing Equipment

Operates Reamers or Hand Pipe-cutters

Handles $\frac{1}{8}$ to 2" pipe; can be
adapted to sizes up to 8"



Pipe-cutter power drive

USES — Power drive for operating hand pipe-cutters, threaders and reamers. For bench or floor-mounting. Handles $\frac{1}{8}$ to 2" pipe, or up to 8" pipe when used with manufacturer's universal drive shaft.

FEATURES — Weighs only 100 lbs. Special chuck-wrench ejector safely removes wrench forgotten by operator.

DESCRIPTION — Cleanly-housed unit has 3-jaw lathe-type scroll chuck in front. Self-centering workholder in rear turns with pipe. Bump-proof start and stop switch. Permanently sealed-in lubrication.

Reversible motor. Plugs into any 110 AC light socket. Unit is 12" high, 19 $\frac{1}{4}$ x 18" at base. Can be mounted on standard pipe legs to form stand, or bolted to bench.

SOURCE—A product of The Ridge Tool Company, Dept. CP, Elyria, O. . . or for more information check CP5748 on handy form, pages 2 and 3.

★ Text Tells Techniques of Materials Handling

Materials handling techniques, as reported in 19 papers presented at technical sessions of the Conference on Materials Handling, at Cleveland, are available in book form.

84 pages include 15 pictures, 11 diagrams, 4 charts and tables. Price \$1. Remit direct to Clapp & Poliak, Dept. CP, 350 Fifth Ave., New York 1, N. Y. Or, when inquiring, specify CP 5749 on handy form, pages 2 and 3.

For more information on product advertised at left, specify CP 5750 . . . see information request blank between pages 2-3.

Processing Equipment

German Drying Tower Produces Polyvinyl Chloride Fabrics by Paste Dispersion

A drying tower used to produce coated fabrics by Siemens Schuckertwerke, A. G., Germany, is described, with photographs and drawings, in an 11-page report. Literature supplements a 51-page report covering manufacture of polyvinyl chloride fabrics and films by use of paste dispersion method. Resin, plasticizer and pigments are mixed together, applied in paste form and fused under high heat to produce tough, flexible film.

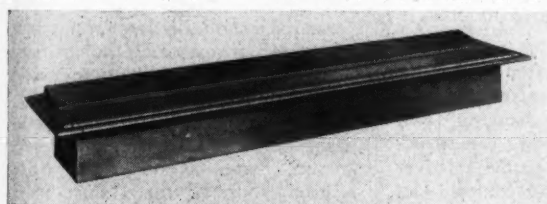
Reports PB-2335 and PB-2335-s (Supplement No. 1), priced at \$1.50 and 50 cents, respectively. Remit direct to Office of Technical Services, Dept. of Commerce, Washington 25, D. C. Remittances should be payable to Treasurer of the United States.

Separates Tramp Iron from Bulk Materials to Prevent Damage

Permanent magnet requires no electrical current; operates efficiently when wet

USES — Removes tramp iron or ferrous contamination from coal, rock and cinder products, paper, textiles, chemicals. One model may be installed in open chutes, another in enclosed chutes. Ordinarily installed at discharge end of bucket elevator fed by car unloader.

FEATURES — No wiring, current or electrical accessories. Minimum maintenance. Not affected by water or wet material. Withstands 600°F. Uninterrupted production. Easy to install. Besides protecting machinery from physical damage, use in hazardous locations prevents sparking iron or hot steel from causing explosions and fire.



Heavy-duty "Giant" permanent magnet

DESCRIPTION — Powerful, newly-designed Alnico castings provide deep, constant, uniform magnetic field. Effective cleaning range depends on size of material and mechanical operating conditions involved. Special face plates are of abrasive-resistant steel and furnished in either flat or stepped pole face. Face plate required depends upon application and size and type of tramp iron to be removed.

Model for enclosed chutes is equipped with hinges and latches which permit unit to be swung down for easy cleaning. Both models are fully insulated to prevent magnetic leakage; this allows direct installation on steel. Recommended that they be installed at beginning of processing lines in order to protect maximum of machinery.

Available in sizes 6" up and built in any width so as to give protection full width of conveying lines. Special designs (odd shapes) are available.

SOURCE — The "Giant" magnet is manufactured by the Eriez Manufacturing Co., 3125 East 12th St., Erie, Pa. . . or for more information check CP 5751 on handy form, pages 2 and 3.

EFFICIENCY Starts at the Top

Instant break-up of water flow is an important step toward cooling tower efficiency. Exact centering of water orifices over the top layer of wood fill, as illustrated, is the C. H. Wheeler method of water dispersion where it counts most, since smaller particles of water are immediately subjected to maximum airflow. . . . Lasting and rugged construction throughout as exemplified here by unusually sturdy wood fill and distribution flumes, enables C. H. Wheeler to guarantee cooling towers to withstand hurricane wind velocities. Ask for descriptive bulletin or quotation.

C. H. WHEELER MFG. CO.
1810 SEDGLEY AVE., PHILA. 32, PA.
REPRESENTATIVES IN MOST PRINCIPAL CITIES

C.H. Wheeler

STEAM CONDENSERS • AIR EJECTORS
COOLING TOWERS • HEAT EXCHANGERS
OF PHILADELPHIA

When inquiring check CP 5752 on handy form, pgs. 2-3

Better service on PYREX brand Glass Pipe and Fittings!



REMEMBER — PYREX brand Glass Pipe gives you these exclusive advantages!

- ★ Maximum resistance to acids
- ★ Product purity
- ★ Complete visibility
- ★ Long service life
- ★ Easy cleaning

and here's how...

1. Increased production facilities. To answer the growing demand for PYREX brand Glass Pipe and Fittings, Corning has expanded its plant at Parkersburg, West Virginia, to step up production on a continuous basis.

2. Completely balanced stocks. Stocks of PYREX pipe are carried in all sizes—1", 1½", 2", 3" and 4" I.D. Fittings—elbows, tees, reducers, return bends and crosses are carried in all five sizes including gaskets and adaptors to meet most service requirements.

3. Orders handled quickly. By sending your orders directly to Corning's Parkersburg plant, you will save three days' time.

California Users can obtain the same fast service by sending their orders for PYREX brand pipe to either of our two following stock-carrying distributors: Valley Foundry & Machine Works, 710 H Street, Fresno, or Glass Engineering Laboratories, 1660 Laurel Street, San Carlos.

4. Faster engineering service. Where you need layout help, engineering service or price information, write or telephone nearest Corning branch office—New York: 718 Fifth Avenue (Circle-6-8224); Chicago: 1470 Merchandise Mart (Delaware 6600); San Francisco: 1355 Market Street (Underhill 1-2727).



CORNING GLASS WORKS, CORNING, N. Y.
SALES OFFICES: NEW YORK, CHICAGO, SAN FRANCISCO

PYREX GLASS PIPE

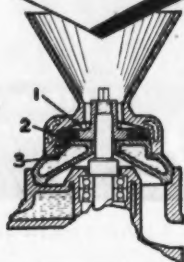
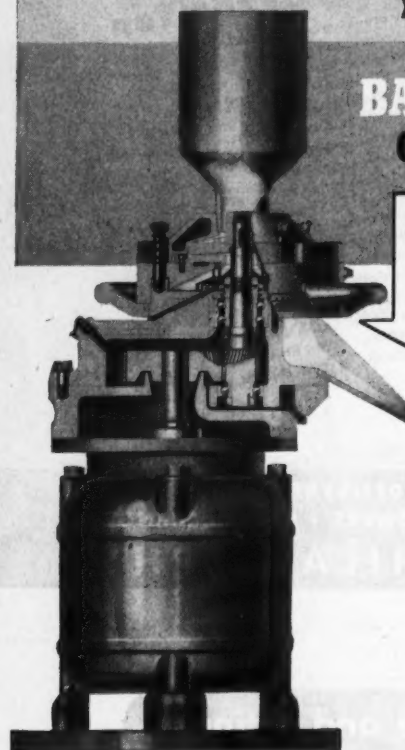
TECHNICAL PRODUCTS DIVISION: GLASS PIPE • LIGHTING WARE • GAUGE GLASSES • SIGNAL WARE • LABORATORY GLASSWARE • OPTICAL GLASS • GLASS COMPONENTS

When inquiring check CP 5753 on handy form, pgs. 2-3

See for Yourself
the advantages of processing
your product in

BARTLETT-SNOW COLLOID MILLS

Featuring this exclusive
*Triple
PROCESSING
Action*



- 1) FIRST PROCESSING ACTION—Mixing in the Upper Chamber by Impeller Vanes on Top of the Rapidly Revolving Rotor.
- 2) SECOND PROCESSING ACTION—Between the Housing and the Periphery of the Rotor.
- 3) THIRD PROCESSING ACTION—Driven Against Centrifugal Force between the Rotor and Stator into Smaller and Smaller Areas.

● Due to their design,— and the exclusive triple processing action,— Bartlett-Snow colloid mills impart to the material approximately three times the dispersing and homogenizing action of other mills,—resulting in extremely rapid mixing, thorough blending, and exceptional stability of the finished material.

Let us test run a sample of your product — ranging from a quart to several gallons — in the colloid mill laboratory of our Cleveland Plant . . . so you can see for yourself what this triple processing action can really do. Your own technicians will be welcome at this trial run. All tests will be handled with greatest secrecy and confidence. The processed material will be returned for your inspection with a report of our findings, and pertinent suggestions. There is no charge or obligation. To complete the arrangements, simply write: The C. O. Bartlett & Snow Company, 6241 Harvard Avenue, Cleveland 5, Ohio.

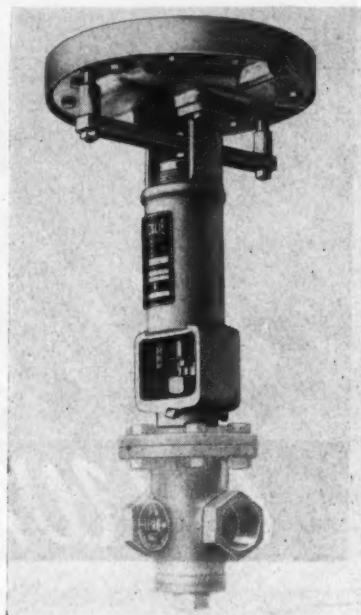
BARTLETT-SNOW
Triple Action
COLLOID MILLS

When inquiring check CP 5754 on handy form, pgs. 2-3

Processing Equipment

Diaphragm Valve Reversed in Line by Use of Superstructure

*Easily installed in place of standard
superstructure; saves man-hours*



USES — Superstructure to permit reversing of manufacturer's diaphragm regulating valve action without removing valve from line.

FEATURES — Simply substituted for standard superstructure. Since valve does not have to be removed from line for reversal, man-hours usually spent in removing valve, gaskets, scraping of flanges and inverting of valve body are saved.

Reversing superstructure duplicates performance of standard superstructure in every way.

Reversing superstructure for diaphragm regulating valves

Protective diaphragm is designed to provide safety and prevent tampering.

DESCRIPTION — Characteristic valve action, including minimum hysteresis, same effective diaphragm area and spring characteristic, is maintained when changing from standard to reversing superstructure. Reversing superstructure is of rugged construction, designed to permit relatively high pressure drops with good throttling control. Described as being made of best materials, it is said to provide reliable performance with minimum maintenance.

SOURCE — Developed for their diaphragm regulating valves by Leslie Co., Dept. CP, 65 Delafield Ave., Lyndhurst, N. J. . . . or for more information check CP 5755 on handy form, pages 2 and 3.

★

Fractional-hp Motors Have Triple-protected Windings

*Centrifugal switch provides positive action; have
manual or automatic overload protection*

USES — Compressors, pumps, stokers, blowers, other uses.

FEATURES — Foremost is "Syncrosnap" centrifugal starting switch which is fast-acting, rugged, simple and provides protection against burn-outs at points of high torque.

"Temprotex" thermostatic overload protector, either manual or automatic type, is furnished on each motor.

Motor windings are made of highest quality insulated wire, group wound to reduce stub connections and are inserted



PROTECT-

**Tanks, Metal-Work
with this Corrosion-
Proof Lacquer**

If you want to protect your tanks or other acid-handling equipment from corrosion, we recommend that you use Pyroflex Lacquer. It is highly resistant to the action of acids, alkalis and other corrosive agents.

Pyroflex Lacquer is made of selected, chemically inert resins that provide an extremely tough and resistant coating. It stays put and does not peel off.

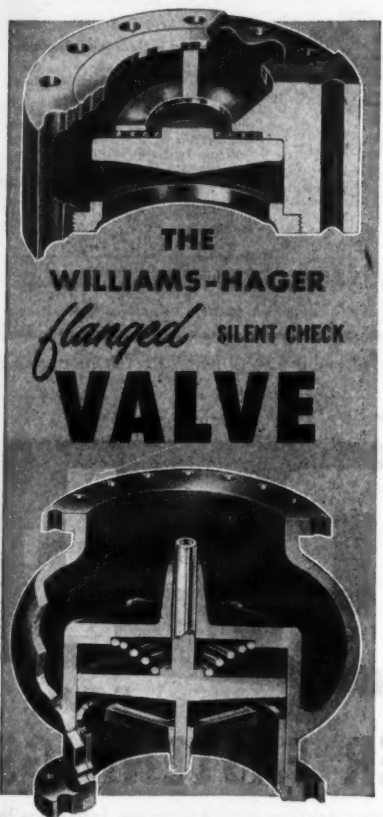
We use it ourselves on the outside of all our Pyroflex-lined steel tanks. Some companies brush or spray it on all metal duct work and girders that are exposed to acid fumes. Pyroflex Lacquer may be used on metal, concrete, wood or previously painted surfaces.

Pyroflex Lacquer is available from stock in grey, black, white, red, green, aluminum, clear and yellow and is shipped in 1-, 5- or 50 gallon containers. For further details write

MAURICE A. KNIGHT
406 Kelly Ave. Akron 9, Ohio

**Pyroflex
LACQUER**

When inquiring check CP 5756
on handy form, pgs. 2-3



The Williams-Hager Flanged Silent Check Valve is available for every service . . . bodies of Iron, Semi-Steel, Cast Steel, Government Bronze, Stainless Steel or Monel Metal . . . fitted with seats and discs of either Government Bronze, Stainless Steel or Monel. Standard sizes from 1 inch to 20 inches. Write for new technical bulletin.

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge
Cocks . . . Steam Traps . . . Pump Governors
... Feed Water Regulators . . . Water Columns

3015 PENNSYLVANIA AVE. • PITTSBURGH (12), PA.

When inquiring check CP 5757
on handy form, pgs. 2-3

Processing Equipment

in fully-insulated stator slots. Wound stator is impregnated with special insulation compound, providing a protective coating of high dielectric strength as well as effective resistance to oils and acids.

DESCRIPTION — F.H.P. electric motors are available in three sturdy, light-weight, quiet, vibrationless styles. Type SI — high load capacity, normal starting current, starting torque of 160% of full load; Type CSI — (capacitor) extra heavy load capacity, low starting current, exceptionally high starting torque of 250% of full load; Type P — polyphase, standard or special. Ratings of 1/6, 1/4, 1/3, and 1/2 hp; special ratings available.

Frame is of heavy metal construction; various types of bases available. Rigid, resilient or shell-type, flange mountings. Integral terminal box for easy wiring. Slotted bases for belt adjustment. Drip proof construction; aluminum alloy end bells. Precision electrical and mechanical parts. Extra-large fan provides forced air, assures 40° operation under load. Extra-heavy duty sleeve or ball bearings.

Stator laminations shrunk-locked under pressure into outer shell by exclusive process. Stator bore is concentric ground. Rotor laminations of thin gauge silicon steel. Rotor bars of solid copper, inserted in slots and electrically welded with copper end-rings. Rotor slots skewed to provide smooth starting torque. Shafts of high tensile strength alloy steel, bearing surfaces precision ground to close tolerances.

Modifications in both electrical and mechanical features are provided if desired. Totally enclosed motors are also available.

Synchromotor switch consists of disc, with integral fingers, stamped as single piece from special spring material. No coil, leaf springs, hinged parts, toggle action. Centrifugal action provides torque to operate switch.

SOURCE — These motors are a product of the Torq Electric Corp., Dept. CP, 1041 Interstate Street, Bedford, Ohio, . . . or for more information check CP 5758 on handy form, pages 2 and 3.

★

Plastic Loop-type Supports in 16 Sizes Hold Pipe, Wire, Tubing

Resist short circuits, temperature changes, corrosion, impact; 1-hole design saves drilling



Plastic clamp supports

USES — Loop-type plastic clamp supports or hangers for mounting cables, wires, tubes, pipes, rods, hose, etc.

FEATURES — Prevent short circuits. Withstand temperature changes from 78° below zero up to 180° F. High tensile and impact strength. Non-rusting. Saves time drilling holes. Can be opened to any dimension to slide over pipes, wires, etc.

DESCRIPTION — Made of tough pliable plastic in 16 standard stock sizes ranging from 1/8 to 1 1/4", in 1/16" variations. Loop construction leaves only 1 hole to drill. Bulletin CS547.

SOURCE — Product of Holub Industries, Inc., Dept. CP, Sycamore, Ill. . . . or for more information check CP 5759 on handy form, pages 2 and 3.

Newark CONSIDERED BY MANY
BEST for PROCESSING

Newark

METALLIC FILTER CLOTH

Newark

METALLIC BACKING CLOTH

Newark

METALLIC CENTRIFUGAL CLOTH

If you are looking for an accurate, durable metallic cloth for your filtering requirements come to Newark. For this is a "brand name" of wire cloth designed to stand-up under heavy duty processing service.

And it's available in the finest of meshes, in metals such as aluminum, brass, phosphor bronze, Monel, nichrome, nickel, stainless steel, gold, silver, or platinum; all firmly and uniformly woven from carefully selected and annealed wire.

Newark Wire Cloth
COMPANY

336 VERONA AVENUE • NEWARK 4, N. J.

When inquiring check CP 5760 on handy form, pgs 2-3

ASCO

**SAFETY SHUT-OFF
SOLENOID
VALVES**

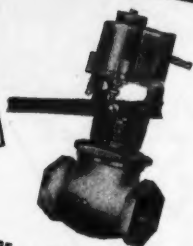
Nos. 8015-8020-8025

**THEY STOP THE
FLOW OF LIQUIDS
OR GASES
INSTANTLY AND
AUTOMATICALLY IN
TIME OF DANGER**



#8015... Designed to be positioned manually and to remain mechanically locked in position. Automatically tripped when the solenoid is energized. Latched open valves are opened manually and tripped closed electrically. The companion type — are latched closed valves — are closed manually and tripped open electrically.

Here are some characteristics of these widely used ASCO Solenoid Valves:



#8025... Plain general purpose Safety Shut-off Valves can be opened whether or not the solenoid is energized, but will remain latched open only while the solenoid is energized. Upon current failure, the valve will close and remain closed until reopened manually.



#8020... Factory Mutual approved for Air or Non-corrosive Gas. Cannot be opened or held open unless solenoid is energized. Will close when solenoid is de-energized independent of operating handle whether valve is partially or fully opened.

If you have any installation — pipe line, machinery or instrument — where it is vital that the flow of gas or liquid be stopped instantly and automatically in time of danger, consider the ASCO Safety Shut-off Valve. It will prove a reliable "safety-first" for that installation. Write us in detail about your problem.



When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

Automatic Switch Co.

319 LAKESIDE AVENUE • ORANGE, NEW JERSEY

When inquiring check CP 5761 on handy form, pgs 2-3

Page 80

Processing Equipment

All-position Electrode Arc Welds Mild Steel

Available in 1/8, 5/32, 3/16, 7/32, 1/4 and 5/16" diameters

USES — All-position arc welding electrode for welding mild steel.

FEATURES — Maintains high degree of welding performance throughout entire length of electrode when used with high welding currents. Satisfactory operation in all positions, especially when welding vertically down. Good operation with minimum spatter, either AC or DC.

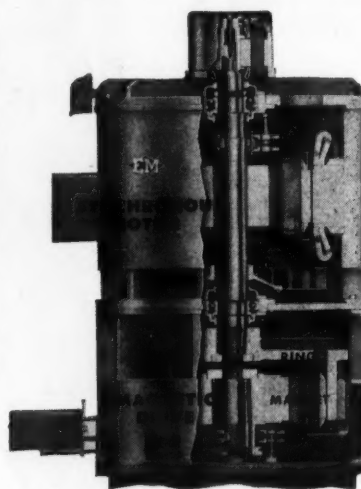
Manufacturer reports more-than-ordinary inches of weld per electrode for units of this class. Strong, smooth deposited bead, of proper contour. Easily-removed slag.

DESCRIPTION — E6012 Class. Available in 1/8, 5/32, 3/16, 7/32, 1/4 and 5/16" diameters. Model 109.

SOURCE — Manufactured by Wilson Welder and Metals Company, Inc., Dept. CP, Dept. 1778P, 60 E. 42nd St., New York 17, N. Y. . . or for more information check CP 5762 on handy form, pages 2 and 3.

Provides Adjustable Speed Control to Centrifugal Pumps

Allows operation of speeds required by liquor level control; prevents "hunting", surges



Adjustable speed vertical drive unit

able master control the pump may be automatically adjusted to conform to changing sewage flows.

FEATURES — Quick, precise response precludes "hunting" and surges; speeds held accurately. Saves power and equipment wear by allowing pump to operate at minimum required speed. Eliminates frequent starts and stops with changing liquid levels.

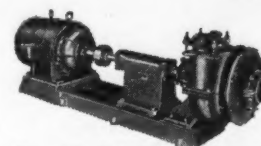
DESCRIPTION — Ring of Magnetic Drive, attached to motor shaft, operates at same speed as motor. Electromagnet, separated from ring by air-gap, is free to revolve within ring. Shaft of pump is attached to magnet. Poles of magnet are excited by direct current through collector ring on magnet shaft. This direct current is supplied by

USES — Adjustable vertical speed control for centrifugal pumps used with black liquor, paper stocks, etc. Regulates speed of pump to meet requirements while allowing synchronous drive motor to operate at constant speed. Allows operation of centrifugal pump at speed required by liquid level control. Particularly useful with sewage pumps, since with suitable

General Ceramics Chemical Stoneware

PUMPS are CORROSION- PROOF

(except against hydrofluoric acid and strong hot caustic)



For complete information on pumps, send for BULLETIN 211

Chemical Stoneware equipment is your answer to any corrosion problem in processing operations. Ask a General Ceramics chemical engineer to call at your plant.

IF YOU HANDLE...

Muriatic Acid • Sulphuric Acid
Nitric Acid • Hydrogen Peroxide

or any other strong corrosive agent . . . use a General Ceramics Chemical Stoneware Pump with a corrosion-proof "wet end." This pump absolutely prevents corrosive action by all strong acids (excepting hydrofluoric and strong, hot caustic), in high or low concentration, at all temperatures up to 300 F.

Capacities . . . up to 800 G.P.M.
Heads . . . up to 90 feet.



GENERAL CERAMICS and Steeltite Corp.
Chemical Equipment Division • Kearsney, New Jersey

When inquiring check CP 5763 on handy form, pgs. 2-3

10 TO 1! FOR HARPER FASTENINGS

Ten reasons for using nonferrous and stainless fastenings by Harper . . . only one for common steel. Harper fastenings resist rust, resist corrosion, many are non-magnetic, others are non-sparking, all are usable again and again, are attractive in appearance, easy to clean, have high strength, give long service life and show lower ultimate cost. The only advantage for common steel is lower first cost.

8000 STOCK ITEMS . . . maintained in Chicago and New York. Large quantities of each. Many are rare and hard to find . . . not stocked elsewhere. Write for complete catalog.



HARPER

The H. M. HARPER Company
2644 Fletcher St., Chicago 18, Ill.
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Offices in Principal Cities

Chicago • New York

When inquiring check CP 5764 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

electronically controlled rectifier tubes which are part of "Regutron" control unit.

The control unit functions from tachometer driven from magnet shaft. Change in speed of this shaft results in unbalance of control circuit and variation in excitation to the magnet poles.

Difference in speed between ring and magnet results in cutting, by ring, of flux lines produced by magnet. This induces current in ring, forming magnetic poles which pull on poles of magnet, causing it to revolve. In this manner, torque is transmitted magnetically through air-gap. Precise variation of torque over a wide range is possible by varying the DC excitation of the magnet.

The drive is a torque transmitter, not a torque multiplier; its torque is always approximately equal to torque input at any speed.

No external cooling devices are necessary. Ring, travelling at motor speed, may be self-cooled. Magnet has such low excitation current that it does not become excessively hot.

SOURCE — This adjustable speed vertical drive unit for centrifugal pumps is manufactured by the Electric Machinery Mfg. Co. Dept. CP, Minneapolis 13, Minn. . . or for more information check CP 5765 on handy form, pages 2 and 3.

Built-in Dial-Controlled Filter Speeds Photo-copying

*Better printing contact produces clearer prints;
improved light diffusion also clarifies*



USES — Makes copies of photos, drawings, blueprints, tracings, graphs, charts, records, etc. Copies originals up to full newspaper size.

FEATURES — Has built-in dial-controlled filter that simplifies and speeds up an already fast process (60 or more copies per hour). Hard plastic printing surface

insures absolutely uniform contact between copy paper and original, thus producing prints of sharper, clearer definition. New design feature promotes more even diffusion of light, insuring clarity of reproduction up to edges of print.

DESCRIPTION — Operates in subdued office light, without lens or darkroom. Manufacturer states that non-professional can make professional prints with machine, it is that simple to operate. Maker's booklet, "Short Cuts in Office Systems", describes use of machine.

SOURCE — American Photocopy Equipment Co., Dept. CP, 2849 N. Clark St., Chicago 14, Ill. is the maker . . . or for more information check CP 5766 on handy form, pages 2 and 3.

JUNE, 1948

R-S Valve Events

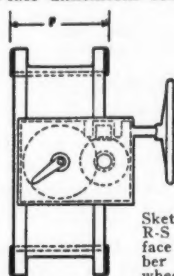
Issued Periodically by R-S Products Corporation, Philadelphia 44, Pa., for Those Concerned with Flow Control and Shut-Off

R-S SHOWS NEW VALVE IN NARROW FACE-TO-FACE SIZE

Drawing shows elevation of new R-S Valve for water service in narrow face-to-face size. It is built for 50-pound and 125-pound pressures.

This valve is made for rugged hydraulic service with a large safety factor for line stresses, water-hammer and other normal abuses.

Face-to-face dimensions follow for various



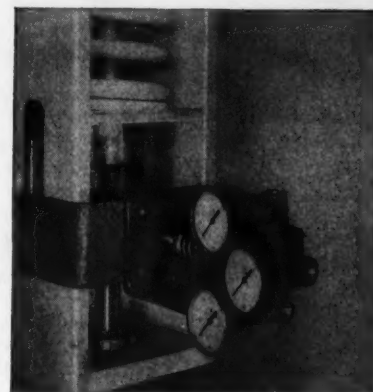
Sketch shows new R-S narrow face-to-face valve with rubber spool and hand-wheel control.

available sizes:

Valve Size	F	Valve Size	F
20"	8"	48"	15"
24"	8"	54"	15"
30"	12"	60"	15"
36"	12"	72"	18"
42"	12"	Larger sizes on request	

The face-to-face dimension includes thickness of the rubber spool with which this valve is normally provided to insure drop-tight shut-off. The valve may be had with metal-to-metal seat if preferred, in which case the face-to-face dimension is $\frac{1}{2}$ " less than the figures quoted above. Because of the narrow face-to-face of this unit it is necessary to drill and tap the 4 bolt-holes on each flange that straddle the center-line of the shaft.

Sketch shows only hand wheel control but the usual hand lever, chain wheel, and chain lever controls are available, too, as well as automatic controls of many types.



Photograph showing control of R-S Valve with Hopkins Cam Positioner

The field of use of the disc type valve, with its lower cost, and capacity of two or three times that of some conventional valves, is thereby greatly widened.

New R-S Valve Representatives . . .

Hardly a month passes without an appointment to the growing list of R-S Valve representation throughout the States and other countries.

This month we announce new representatives in:

El Paso, Texas
Steel & Engineering Products Company
Mills Building, El Paso, Texas
Telephone Main 1770

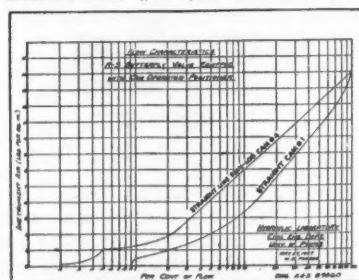
William W. Small is in charge of this office, covering western Texas.

Toronto, Ontario
Canadian Piping & Refinery Specialties,
Ltd.

2498 Yonge Street, Toronto 12, Ontario,
Canada

L. T. Brodie is in charge.

Graph shows flow characteristics of R-S Valve utilizing straight Cam #1 and characterized Cam #4. (See next column)



R-S Announces New Cam Operated Valve Positioner

A cam-operated positioner is a key feature of a new diaphragm motor valve of the disc or butterfly type just announced by R-S Products Corporation. Excellent control of flow characteristics is attainable by simply changing cams in the field on the cam-operated positioner, which, in effect, adds to the normal functions of the disc type valve. The desirable characteristics of a straight line semi-log curve, linear, or almost any other special characteristics to suit individual process requirements, are within the range of the new positioner.

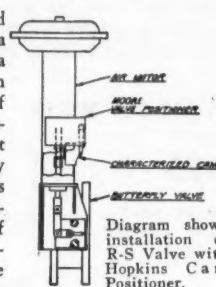


Diagram shows installation of R-S Valve with Hopkins Cam Positioner.

Replacing of one cam on the positioner with another of a different shape permits the retention of the basic advantages of the disc type valve while adding special flow characteristics typical of other valve types. Air motor shown in sketch above utilizes up to 50 p.s.i. operating air pressure. Valve positioner utilizes 0 to 15 p.s.i. instrument air. The cam-operated positioner is also available using hydraulic or air cylinder instead of air diaphragm motor. (Continued in next column)

An Off-told Tale!

"Occasionally," says Russell C. Ayers, Sales Manager of the R-S Valve Division, "we note valve and fitting suppliers advertising magnesium and aluminum castings as if they were a discovery."

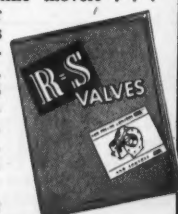
"The fact is that these metals are not novelties in valve manufacture. R-S has been making valves of magnesium, aluminum, and other light metals, and many alloys for a great many years."

"Further, we make our valves of any material that can be cast or welded, even including plastics for certain purposes."

The New R-S Valve Catalog #17

R-S Valve Catalog #17 is packed with information for engineers. There are over 70 halftone pictures of R-S Valves . . . working drawings of 21 types of R-S Valves with standard controls and fittings and complete dimensional data for all sizes . . . working drawings of 22 types of prime movers . . . numerous other diagrams, graphs and miscellaneous drawings. Address R-S Products Corporation, Valve Division, Philadelphia 44, Pennsylvania.

JMLco P-EE2



When inquiring check CP 5767 on handy form, pgs. 2-3

What Are Your PROCESSING NEEDS ?

**STANDARD
EQUIPMENT?**

**SPECIAL
UNITS?**

**COMPLETE
PLANTS?**

I*P*E Furnishes All Three

—backed up with experienced engineering skill, expert design and precision manufacturing.

I*P*E's "standard-plus" line has progressed beyond the accepted meaning of the word "standard." Every equipment item was special when originally designed—built to meet specific needs—and now is included in—

THE I*P*E STANDARD PLUS LINE PROCESSING EQUIPMENT

Order a REACTOR and you'll get the outstanding advantages of a special engineered job. This is also true for I*P*E

KETTLES—DISSOLVERS—SOAP and GREASE CRUTCHERS—

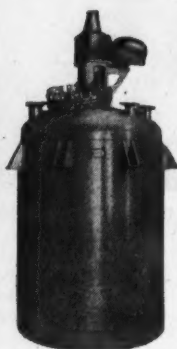
SCREW TYPE EXTRUDERS—NITRATORS—

SULFONATORS—CRYSTALLIZERS—

STILLS—DRYERS—ROASTERS—GAS

ABSORBERS—AUTOCLAVES—EVAPORATORS

◀ 2000 GAL. I*P*E AGITATED REACTOR

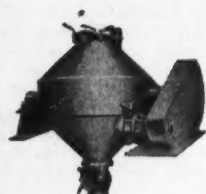


MIXING EQUIPMENT

—Here's a mixer developed for use with materials having the tendency to lump—a special job that is now "standard-plus." Other I*P*E mixers with outstanding features are

CONTINUOUS MIXERS—PASTE MIXERS—CONICAL DRY MIXERS—DOUGH MIXERS—REDUCING MIXERS.

◀ I*P*E CONICAL DRY MIXER



AGITATORS

—There's an I*P*E agitator for every mixing need—TURBINE TYPE—PADDLE TYPE—VERTICAL FINGER TYPE—PROPELLER TYPE—ANCHOR TYPE—RIGHT ANGLE VERTICAL AGITATOR DRIVE.

I*P*E 36" DIA. MULTIPLE TURBINE AGITATOR ▶



SPECIAL UNITS AND COMPLETE PLANTS

I*P*E staff of process plant analysts, engineers and designers welcome your inquiry for special needs. No obligation.

1618

Send for our complete catalogue



INDUSTRIAL PROCESS ENGINEERS

— ENGINEERS
— DESIGNERS
— MANUFACTURERS

5202 HUDSON AVENUE, WEST NEW YORK, N. J.

When inquiring check CP 5768 on handy form, pgs. 2-3

Processing Equipment

Improved Suits Protect from Rain, Sleet, Snow, Wind

Rubber-wear, in one or two-piece styles, provides comfort, freedom of movement



2-piece (left) and 1-piece (right) utility rain suits

USES — Offers protection from rain, snow and sleet to maintenance men, emergency crews, coal and ash handlers tank farm patrolmen, quarry workers, dye plant workers, yard workers, all men who work outside.

FEATURES — Absolutely waterproof and wind-proof. Patterned roomy to be worn

over regular clothing. Affords complete protection with comfort and freedom of movement. Will give long life with ordinary care.

DESCRIPTION — Furnished in one-piece and two-piece styles. Both are made of double texture fabric, olive drab color, with sheet of solid vulcanized rubber in between.

Two-piece style consists of coat, pants and detachable hood. Coat is put on in regular manner, without pulling over head, by means of hookless separating fastener. Two large pockets with flaps. Elastic wrist bands. Pants are waist type with draw strings and suspender buttons.

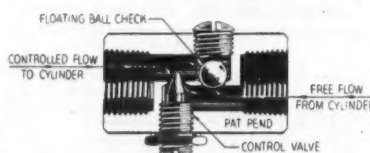
One-piece style also has detachable hood. Slide fastener is covered by wide protecting flap. Elastic wrist bands. Extra reinforcement around waist and at seat. Breast pocket has flap. Suit has ventilating yoke in back, underneath which are twelve 1/2" ventilators.

Furnished in small, medium, large and extra large sizes.

SOURCE — These improved wet-weather garments are products of Industrial Products Company, Dept. CP, 2963 N. Fourth St., Philadelphia 33, Pa. . . or for more information check CP 5769 on handy form, pages 2 and 3.

Accurately Controls Speed of Air, Hydraulic Cylinders

Valve has wide range of adjustment; features unrestricted flow from cylinder



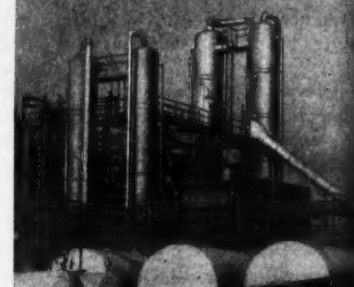
Air and hydraulic flow control valve

USES — Flow control valves for air or hydraulic cylinder speed control. Applications include speed control for double or single-

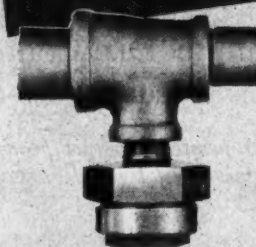
acting cylinders; delayed return control, fast forward, slow return; air cushion for spring-return diaphragm or cylinder; hydraulic check cylinders; speed control of cylinders in parallel variable speeds forward, same speed return.

FEATURES — Provides accurate control of cylinder speed plus unrestricted flow from cylinder. Compact size (only

**FLAMMABLE...
OR
COMBUSTIBLE?**



**BLAW-KNOX
FOG NOZZLES AND
AUTOMATIC SPRINKLERS
PROTECT BOTH**



Whether tank-stored liquids or gases are rated "flammable" or merely "combustible," Blaw-Knox Fog Nozzles and Automatic Sprinkler Systems provide constant protection from fire—instant resistance to spreading of fire.

The double purpose "fog-plus" spray spreads a cloud of wet fog and at the same time strikes through to the base of the fire, cooling and quenching.

Tanks exposed to dangerous external high temperatures, are kept cool by the action of Blaw-Knox Fog Nozzles.

Write for Bulletin No. 2207



Listed by Underwriters' Laboratories, Inc., and Approved by Factory Mutual Laboratories.

Blaw-Knox offers Wet and Dry Pipe Sprinkler Systems and Thermostatically Controlled and Supervised Deluge Systems.

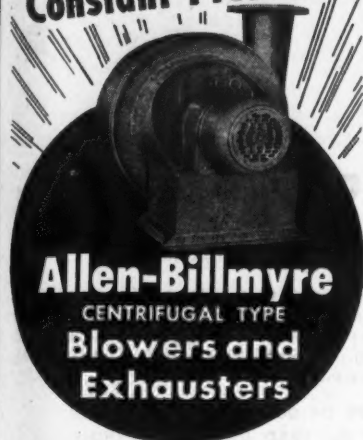
**BLAW-KNOX
SPRINKLER DIVISION**
of Blaw-Knox Construction Company

829 Beaver Ave., N. S.,
Pittsburgh 12, Pa.

Offices in Principal Cities

When inquiring check CP 5770 on handy form, pgs. 2-3

**For AIR or GAS at
Constant Pressure!**



Allen-Billmyre CENTRIFUGAL TYPE Blowers and Exhausters

- Inherently
Self-Governing
- Quiet and
Vibrationless
- Only One
Moving Part . . .

Power consumption varies with the load and a constant pressure is maintained through the entire capacity range.

Only two bearings—located well outside of the housing—require lubrication.

External bearings assure clean dry air at all times.

Ample clearances permit normal quantities of dust to pass through the machine without harmful effect.

The impeller assembly—the only moving part—is accurately balanced.

Allen-Billmyre Blowers and Exhausters are highly efficient for Agitation and Aeration . . . Manufacture of Gases, Acids . . . Combustion Processes . . . Conveying . . . Cooling and Ventilation . . . and all low Pressure and Vacuum Requirements
Made in wide range of sizes for ½ to 200 HP

FREE!

Send for Bulletin B-5. Describes Blowers and Exhausters . . . their application and specifications.

ALLEN-BILLMYRE DIVISION

**LAMSON
CORPORATION**
1025 Lamson St. Syracuse, N. Y.

When inquiring check CP 5771 on handy form, pgs. 2-3

Processing Equipment

slightly larger than pipe size) permits more compact piping arrangements.

High efficiency assures full use of air or hydraulic cylinder power.

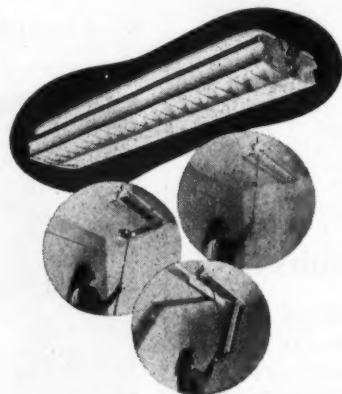
DESCRIPTION — Eliminates abnormal pressure of exhaust from return side of cylinder. When flow is toward cylinder in either direction, ball check closes instantly, and flow path is directed through flow control valve, which has wide range of adjustment. Reverse flow from cylinder is unrestricted due to unloaded ball check opening wide on a slight change in pressure.

Working pressure, 1000 psi. Made in ¼, ¾ and ½" pipe sizes, from brass hexagon roll bar stock. All other parts are stainless steel. To adjust flow rate, loosen needle nut, turn needle screw to right to decrease flow, or to left to increase flow.

SOURCE — A product of Pneu-trol Devices, Inc., Dept. CP, 3122 N. California Ave., Chicago 18, Ill. . . or for more information check CP 5772 on handy form, pages 2 and 3.

Easy-to-install Fluorescent Fixture Simply Serviced

"Jackknife" hinge permits easy removal of
assembly and lowering to floor



Guth-Lite, and illustration of easy servicing, cleaning

USES — Fluorescent lighting fixture for use in plants, offices, etc.

FEATURES — Servicing, cleaning, changing of lamp or starter is easily done at floor level by use of light-weight maintenance rod, doing away with use of awkward ladder. Reflector assembly, including lamps, lampholders, starters, ballast, wiring, reflectors and louvers, can be lowered to floor level. It is

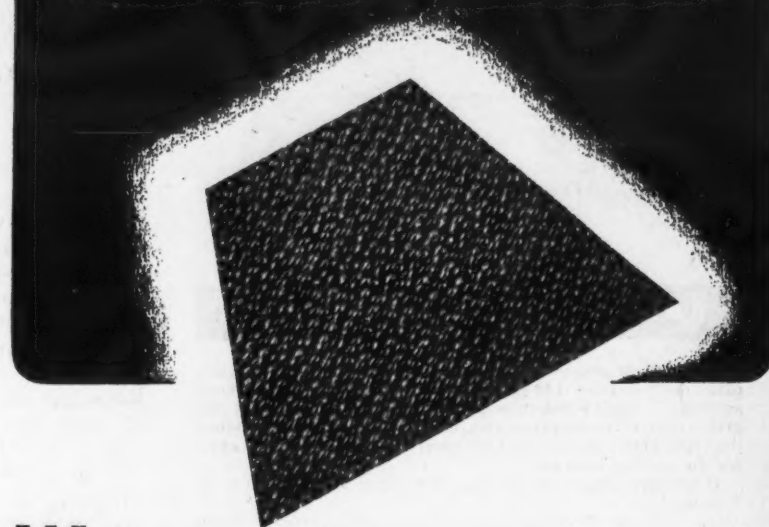
pointed out that easier cleaning promotes more frequent cleaning and, hence, better lighting.

Two-piece "Jackknife" construction makes possible economical installation short-cuts. Separate channel weighs only 10 lbs. so one man can easily mount it. Channel is quickly wired; there are no accessories or wiring to get in way. Reflector assembly includes all wiring and accessories and is joined to channel by the "Jackknife" hinge.

DESCRIPTION — Engineered for efficient high-quality illumination with 2-40 W or 2-100 W lamps. Attractive design; has good-looking radiant-glow appearance when lighted. This luminous effect is produced with side and spill lighting, without use of glass or plastic panels.

SOURCE — The Guth-Lite is manufactured by The Edwin F. Guth Company, Dept. CP, 2615 Washington Ave., St. Louis 3, Mo. . . or for more information check CP 5773 on handy form, pages 2 and 3.

Hot Acid Filtration!



Woven Glass Filter Cloth is

NFM Glass Filter Cloth is woven from a special formula chemical glass which provides a maximum degree of chemical resistance. This woven glass filter cloth is completely resistant to acids (except hydrofluoric and hot phosphoric) in their most concentrated form. It will withstand extremely high operating temperatures—temperatures well beyond the limits usually encountered in the process industries.

Perhaps NFM Woven Glass Filter Cloth will solve some of your filtration problems. This cloth is available in twill, chain and plain weaves in numerous porosities and in widths from 26" to 72". It is also available as made-up filter element covers to fit all standard filters. Literature and pilot test samples available on request.

Outstandingly Successful!

National Filter Media Co.

1717 DIXWELL AVENUE • NEW HAVEN 14, CONNECTICUT

Sales Division
of
FILTER MEDIA CORPORATION

SALES OFFICES

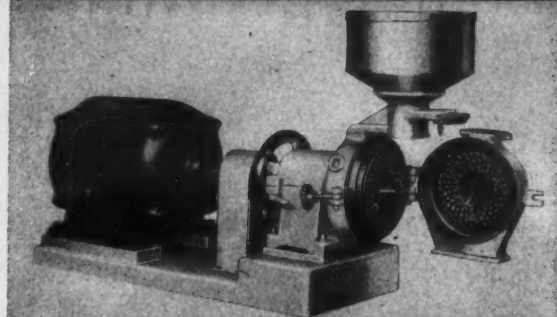
Felt Building
Salt Lake City 1, Utah

2627 West 19th Street
Chicago 8, Illinois

1717 Section Road
Cincinnati 16, Ohio

When inquiring check CP 5774 on handy form, pgs. 2-3

IS THIS YOUR SIZE?



BAUER 8-in. ATTRITION MILL

If you need a relatively small mill of great versatility, the Bauer No. 148-1B is built for you. It pulverizes almost anything—metal, wood, minerals, nut shells, grain, seeds. It also grinds coarse, cracks, granulates, shreds, fluffs. You simply select the right plates or discs and set them the desired distance apart for the results you want.

If the mill might run too hot, a water-jacketed case can be furnished.

The mill can be equipped with direct motor drive or sheave for V-belts. Power input may be 3 to 20 h.p. Built-in ammeter indicates applied power load. Usual mill speed is 3450 rpm.

If this sounds interesting so far, ask for fully descriptive literature. Write or wire now while you have the notion.

THE BAUER BROS. CO., Springfield, Ohio

When inquiring check CP 5775 on handy form, pgs. 2-3

INDUSTRIAL

Aluminum LADDERS

DESIGNED FOR EFFICIENCY AND SAFETY

High quality Aluminum Ladders are gaining greater and greater recognition in modern industry where their light weight and great strength spell efficiency and safety. Constructed from 61ST aluminum alloy with a high tensile strength, all aluminum ladders are fire-proof, rust-proof, non-corrosive, non-sparking, easily handled and stored, and perfectly balanced. For years of dependable ladder service, specify Aluminum Ladders when you buy. Write for descriptive literature and prices.

SPECIFICATIONS FOR TYPE 400

Model	Height to Platform	Width at Bottom	Weight
400	4'	25"	20 lb.
401	6'	27-3/4"	28 lb.
402	8'	30-3/4"	38 lb.
403	9'	31-3/4"	44 lb.
404	10'	33-3/4"	48 lb.
405	11'	34-3/4"	52 lb.
406	12'	36-3/4"	56 lb.



TYPE 400

"Original Manufacturers of Aluminum Ladders"

Aluminum Ladder
Company

292 Carbis Street
Worthington, Pa.

When inquiring check CP 5776 on handy form, pgs. 2-3

Processing Equipment

Long-lived Motorized Speed Reducers Have Precise Switch

Snap-action eliminates burn-outs; available in 1/3, 1/4-hp, ratios 5:1 to 72:1, 24-317 rpm.

USES — Fractional-hp motorized speed reducer for low-hp, low-speed applications.

FEATURES — Soundly engineered for long service, it is reported. Worm gears are of special gear bronze, selected for greatest strength with minimum coefficient of friction. New Torq Syncrosnap starting switch insures precise snap-action and eliminates damage through burned-out windings.

DESCRIPTION — Available in 1/4-hp and 1/3-hp capacities, called series M-1400 and M-1300, respectively. Ratios covered by two models are 5:1 to 72:1; output 317 rpm to 24 rpm. Output torque 43 in.-lb to 34 in.-lb. May be of either capacitor type in 115 volt and 230 volt, or 3-phase type in 220/440 volt, 60 cycle AC.

Attractive in appearance; housings are of special aluminum alloy. Worm and motor shafts are integral, made of hardened steel and ball bearing mounted. Output shaft is extra-heavy with ample bearing support. Output shaft roller bearings are mounted in cast iron covers. Input shaft bearing is mounted in cast iron carrier cap.

Precision-built, of drip-proof construction. Heavy-duty ball bearings throughout. Capacitor may be mounted above or below motor.

SOURCE — These motorized speed reducers are products of the Ohio Gear Co., Dept. CP, 1400 E. 179th St., Dept. 15, Cleveland, Ohio, . . . or for more information check CP 5777 on handy form, pages 2 and 3.

★

Photo Copying Machine, Timer Assure Uniform Results

Simple operation, durable construction are features; stands volume production

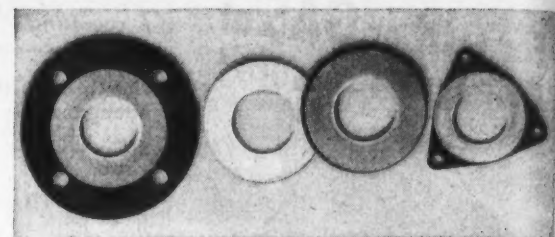
USES — Copies printed, written copy, photographs. Excellent as contact or reflex printer.

FEATURES — Simple operation. Included automatic electric timer assures perfect, uniform results in any quantity. May be used constantly for volume production. Operates in ordinary office light without need for darkroom, focusing or heating unit.

DESCRIPTION — Copying surface is 14 x 20". Carefully engineered, sturdily built with heavily reinforced plywood, covered with washable rubberoid cloth; heavy



Photo copying machine with timer



Chemiseal—Teflon-Jacketed Gaskets

- ★ CHEMICALLY INERT UP TO 500° F.
- ★ TOUGH, RESILIENT, ANTI-ADHESIVE

Chemiseal Gaskets are available with a wide variety of selected inserts for specific applications, and for use on chemical and process equipment such as glass or enamel lined steel, Karbate, Havg, stoneware, porcelain, stainless steel, Pyrex and similar equipment.

ANY SIZE, SHAPE, OR QUANTITY TO YOUR ORDER
Large or small dia. HEAD GASKETS, MANHOLE, NOZZLE, FLANGE, AGITATOR GASKETS, etc.

Teflon is available from United States Gasket Company in various forms of PACKING and Special MOLDED PRODUCTS.

Write today for complete information. Send prints and/or specific data for recommendation.

UNITED STATES GASKET CO.

618 North 10th Street, Camden, New Jersey

When inquiring check CP 5778 on handy form, pgs. 2-3



WANT A

TABLE GUMMER GLUE THAT REALLY WORKS?

Paisley research has developed three brand new Table Gummer Glues..

1. TABLE GUMMER BOTTLE LABEL GLUE
2. TABLE GUMMER TIN CONTAINER GLUE
3. TABLE GUMMER SHIPPING LABEL GLUE

Each of these fine new adhesives possesses distinctive characteristics. Each one is specially designed for the job it has to do. No one all-purpose Table Gummer Glue can work with the same speed and efficiency on tin, glass, paper and other packaging materials. Now, with the right kind of PAISLEY Table Gummer Glue, labeling operations of this type can be performed with greater speed and efficiency. Labels stay put . . . no shifting or falling off. Loose, torn edges and spotty gumming are eliminated. Order a trial shipment TODAY, or send for free Adhesive Operation Data Sheet.



PAISLEY PRODUCTS INCORPORATED

Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products
1770 CANALPORT AVE., CHICAGO 16, ILL. ★ 630 W. 51st STREET, NEW YORK 19, N.Y.

When inquiring check CP 5779 on handy form, pgs. 2-3

Processing Equipment

hinges, durable clamps and unbreakable Tufflex glass. Furnished complete with the necessary accessories, including trays, dryer, paper, chemicals, color filter, red pilot light, squeegee board and glassware. Operates on 115 volts, AC.

SOURCE — General Photo Products Company, Dept. CP, General Photo Building, 15 Summit Avenue, Summit, N. J. . . . or for more information check CP 5780 on handy form, pages 2 and 3.

Individually-tested Packless Solenoid Valve Self-Closes

Quick-acting, low-maintenance valve controls water, steam, oil, air flows; no hammer



Solenoid valve, showing inlet (right), outlet (left). Pressure chamber, solenoid needle and piston can be seen

valve outlet. Relief of pressure in chamber allows supply line pressure to lift piston from valve seat; valve is then fully opened, admitting full supply flow and pressure through outlet. Valve remains open while solenoid is activated.

To shut valve, current to solenoid is broken. This releases solenoid needle, gravity dropping needle on piston drain orifice. Needle closes piston drain orifice, causing supply line pressure to develop in pressure chamber above piston. This pressure pushes piston down to close valve and hold piston firmly on valve seat. Clearance between piston and valve cylinder wall provides constant supply line pressure from valve inlet to pressure chamber.

Pilot on bottom of piston operating within valve seat has inverted "V" opening which gradually "squeezes off" or decelerates main supply flow when piston is closing, thus eliminating pressure hammer and vibration.

Solenoid and valve are designed for continuous and intermittent operation. Made in three types: 2100, inlet and outlet female iron pipe; 2110, inlet and outlet flared copper tube; 2120, inlet and outlet solder connection. Bronze valve construction, non-corrosive working parts.

SOURCE — The "Electroflo" valve is a product of the Hays Mfg. Co., Dept. CP, Erie, Pa. . . . or for more information check CP 5781 on handy form, pages 2 and 3.

USES — Controls flow of water, steam, oil, air.

FEATURES — Precision machined, individually-tested. Self-closing, quick-acting, packless, anti-hammer. Permits remote, automatic control, time cycle operation. Said to deliver maximum flow at minimum operation and product cost; carefree operation with little or no maintenance.

DESCRIPTION — To open valve, electric current is applied to solenoid which creates a magnetic field, lifting solenoid needle from piston drain orifice near top of valve. Opened orifice permits flow pressure to escape from valve pressure chamber, at top of valve and above piston, through center of piston and



Test your reputation at 1050° F

These Taylor Forge stainless steel return bends were manufactured recently for an extreme high temperature operation in an Eastern power plant. The double-long radius, 6-inch return bends are of Stainless Type 347 steel, in Schedule 160 wall thickness, and are the first of their kind to be made available to the power station field.

This is not the first time Taylor Forge has been identified with unusual "firsts." These fittings are operating at 1050° F temperature and 1500 pounds pressure. Naturally, the manufacture of *safe* fittings for such conditions demands and gets complete mastery of forging techniques, which is part of our daily job. That is why more features that count are combined *only* in WeldELLS and other Taylor Forge welding fittings. That is why Taylor Forge welding fittings, available in a wide range of types, sizes and metals, are so universally preferred for the most critical conditions.

WeldELLS
have everything

They alone combine these features:

- **Seamless** — No question about soundness in a fitting that is forged and formed seamless.
- **Tangents** — Keep weld away from zone of greatest stress — simplify lining up.
- **Precision quarter-marked ends** — Expedite layout; insure accuracy. A constructive refinement.
- **Complete identification** — Permanent type; saves time; prevents errors.
- **Wall thickness never less than specification minimum** — Assures full strength and long service life.
- **Machine tool beveled ends** — Provides the best welding surface; accurate bevel and land.
- **Full line** — The most complete line of welding fittings and forged steel flanges in the world — greatest range of types, weights, sizes.

TAYLOR FORGE & PIPE WORKS

General Offices & Works: Chicago 90, Ill. (P. O. Box 485)

EASTERN PLANT: CARNEGIE, PA.

DISTRICT OFFICES

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50 Church Street
Philadelphia:
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☐ Send your latest data on Stainless Steel Welding Fittings and Flanges.

☐ Keep me informed about Carbon Steel Welding Fittings and Forged Steel Flanges.

Name and Position _____

Company and Dept. _____

Street Address _____

City _____ Zone _____ State _____

515-0648

Mail to Taylor Forge & Pipe Works
P. O. Box 485, Chicago 90, Ill.

When inquiring check CP 5782 on handy form, pgs. 2-3



FROM THE TOP OF THE
EMPIRE STATE BUILDING

To The

BOTTOM OF THE **HOLLAND TUNNEL**

Anti-Corrosive Stainless Steel Fastenings

ARE SAVING MONEY THRU
LONGER, BETTER SERVICE

From the machine screws used on the dome of the Empire State Building to the nuts and bolts in the structure of the Holland Tunnel, and everywhere in between, you'll find Anti-Corrosive Stainless Steel Fastenings doing their work, and doing it well! Bolts, nuts, screws, rivets, cotter pins, nails, as well as pipe fittings and pipe, are fighting corrosion, lasting longer, proving themselves more efficient and economical. Wherever there's corrosion, there's a need for Anti-Corrosive Stainless Steel Fastenings!

Availability — Completeness

Over 100 items . . . over 7,000 standard sizes, in all standard analyses, in Anti-Corrosive's complete stock room, ready for shipment. Also special sizes, analyses, made according to your specifications.

DESIGNERS! . . . Please send for our new **PRODUCT LIST** . . . A complete listing of our Stainless Steel Fastenings available for immediate shipment. Address Anti-Corrosive Metal Products Co., Inc., 52 River Road, Castleton-on-Hudson, N. Y. In Canada, Railway and Power Engineering Corp., Ltd.

Anti-Corrosive

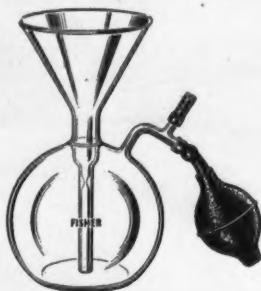
FASTENINGS
STAINLESS STEEL

Anti-Corrosive Metal Products Co., Inc.
Castleton-on-Hudson, N. Y.

Processing Equipment

Allows Simple, Safe Glassware Washing with Corrosive Solutions

*Cleans beakers, flasks, graduates, other
small laboratory equipment*



Desk-size glassware washer

USES — Apparatus is used in cleaning small laboratory equipment, such as beakers, flasks, graduates, with corrosive acids.

FEATURES — Simple and safe operation is reported.

DESCRIPTION — Desk-size Harris-Mitchell Glassware Washer consists of lower portion shaped like Florence flask into which upper, funnel-shaped portion, is inserted.

Side tubulature with rubber bulb permits user to force air into lower portion, raising cleaning solution into upper funnel in which the glassware is held. Glassware is cleaned, flushed with tap water and rinsed with distilled water to ready for use.

Pressure may be released through second tube joined to side tubulature, thus allowing solution to return to bottom portion.

SOURCE — Manufactured by the Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 5784 on handy form, pages 2 and 3.

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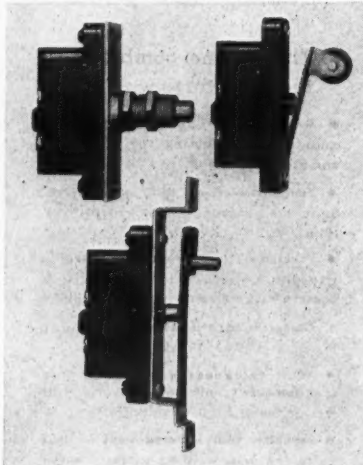
3 Operators Expand Uses of Precision Snap Switch

*Can be added to existing mechanisms
for increased utility*

USES — New series of 3 operators for precision snap switches. For addition to basic mechanism of manufacturer's present switches, extending their industrial applications. Also made for specific uses.

FEATURES — Tests by manufacturer under actual operating conditions indicate long mechanical life. Operates with short movement, light pressure.

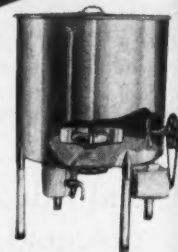
DESCRIPTION — Snap-action contacts on these small, self-contained switches are rated at 600 volts pilot duty,



Plunger-type, roller-leaf and door-type
snap switches

PRECISE QUALITY and WORKMANSHIP

Filpaco
**Stainless
Steel
TANKS**



**for Storage and Mixing
in the FOOD INDUSTRY!**

- Sizes: 30 gallon to 1000 gallon capacities
- Fabricated of 18-8 stainless steel
- 100% Drainage
- Side or bottom agitators or combination of both
- Sanitary fittings
- SPECIAL TANKS DESIGNED AND FABRICATED to meet your specific problem

WRITE FOR ILLUSTRATED LITERATURE!

Other "FILPACO" Products:

Filters, stainless steel storage and mixing tanks, fillers, pumps, conveyors, fittings, filter paper, filter cloth, asbestos pads and filter aids.



THE FILTER PAPER CO.

2436 South Michigan Avenue Chicago 16, Illinois

When inquiring check CP 5785 on handy form, pgs. 2-3

Like Magic!

**MORE STEAM
FROM THE
SAME BOILER**

ON THE SAME AMOUNT OF FUEL

with a **SCHAUB Heat Reclaim SYSTEM**

Cut operating costs by saving fuel. A Schaub Heat Reclaim System re-uses "flash" steam that escapes from the condensate receiver vent. You get more steam from the same fuel — or the same steam from less fuel.

Feed water temperatures are built up to 240° — or higher. All heat units above 212° in the high pressure returns are recovered and re-used. Automatic boiler water level and make-up are provided.

Get the facts. Write today for full information.

SCHAUB SYSTEMS *The Key to Boiler Room Efficiency*

FRED H. SCHAUB ENGINEERING CO., INC.

2113 South Marshall Boulevard • Chicago 23, Illinois

When inquiring check CP 5786 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

When inquiring check CP 5783 on handy form, pgs. 2-3

Processing Equipment

AC or DC. Standard operators of the new series are in 3 arrangements, as follows:

1) Plunger-type, panel-mounting switches consisting of basic snap switch mechanism and plunger-type operator. Plunger mechanism is plated brass tube containing operating button and over-travel spring. Plunger is threaded on outside, and is designed to mount in a $\frac{1}{2}$ " diameter hole in panels up to $\frac{3}{8}$ " thick. Two hexagonal nuts fasten plunger to panel and permit adjustment of the mechanism in the panel in relation to distance from operating cam.

2) Roller-leaf limit switches consisting of basic contact mechanism riveted to an operating arm of beryllium copper. Non-metallic roller assembly at end of arm is suitable for operation from a cam or other means. Limit switch can be mounted with aid of machine screws or studs through spun rivets which fasten cover to case.

3) Door-type switches designed to function as an electrical interlock on a cabinet door. Arrangement consists of basic contact mechanism assembled to a mounting bracket and a beryllium copper operating arm. Over-travel, beyond that incorporated in contact mechanism, is obtained through the design. Two mounting holes are provided in bracket.

Class 9007, Type A line.

SOURCE — Products of Square D Company, Industrial Controller Division, Dept. CP, 4041 N. Richards St., Milwaukee 12, Wis., . . . or for more information check CP 5787 on handy form, pages 2 and 3.

★

Unbreakable, 5-gal Pail Carries Acids, Corrosive Solutions

Made of rubber-covered perforated steel; tipping handle at bottom for easy, safe pour



Acid pail, showing closeup of construction

USES — Handles acids and most corrosive solutions.

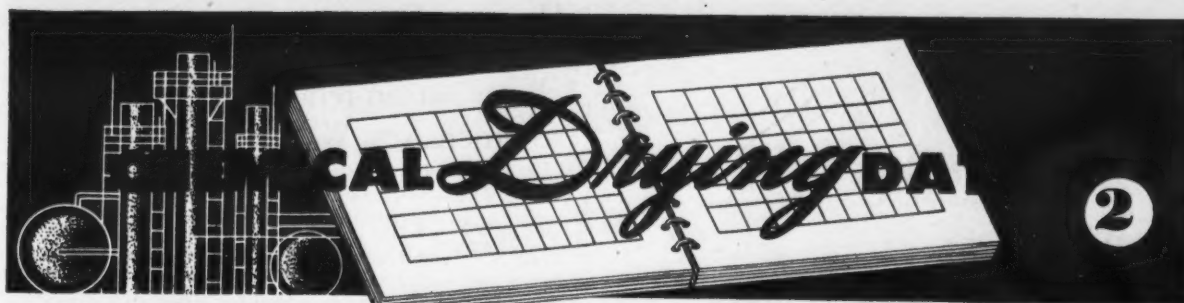
FEATURES — Unbreakable. Tipping handle provided at base for safe, easy pouring.

DESCRIPTION — 5-gal pail made of perforated steel with welded seams, and covered, inside and out, with

rubber permanently wedged through perforations. Top is no larger than 3-gal size to decrease likelihood of fluids splashing or spilling when carried. Bail on handle is completely rubber-covered. Pouring dip is formed on edge.

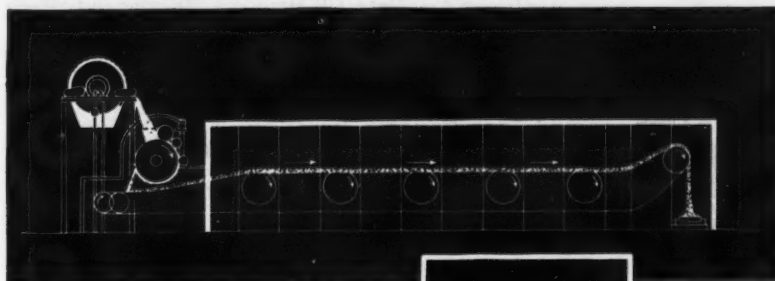
SOURCE — This pail completes line of acid-handling utensils produced by the Automotive Rubber Co., Inc., Dept. CP, 8601 Epworth Blvd., Detroit 4, Mich. . . or for more information check CP 5788 on handy form, pages 2 and 3.

JUNE, 1948



PUBLISHED MONTHLY FOR PROCESS INDUSTRIES EXECUTIVES AND OPERATING PERSONNEL

TONNAGE OUTPUT OF CERTAIN WET-SOLIDS MADE POSSIBLE BY PROCTOR CONTINUOUS CONVEYOR DRYING SYSTEM WITH "FIN DRUM" FEED



In order to make possible tonnage output of wet-solids and still maintain a consistently high quality, Proctor engineers developed the idea of first preforming the product into small, uniform shapes and then drying these shapes in a continuous conveyor system. Because of the physical characteristics of certain wet-solids it soon became apparent that a variety of types of "preforming" feeds would have to be designed. Certain wet-solids reach the feed of the dryer in such a moist condition that it is impossible for the product to hold any definite shape without further moisture re-



Close up of "fin drum sticks" shows uniform shapes made by pressing wet-solid into grooves of internally heated, revolving drum of the fin drum feed.

duction. For products of this type—the fin drum feed was developed and has been used with marked success in many installations. When this system is employed the material to be dried is deposited into the hopper of the feed and by means of a "pasting roll" is pressed into the grooved surface of an internally heated revolving drum, where it is partially dried. It is

discharged from this drum—onto the conveyor of the dryer—in the form of small sticks of about $\frac{1}{4}$ " thickness.

Once the preforming is accomplished—it is possible to continue with conveyor drying, whereby heated air is circulated through the bed of material on the constantly moving conveyor of the dryer. Drying the product in the form of small shapes permits heated air to penetrate all the way through to the center of each particle. More rapid diffusion takes place and the drying is subsequently more rapid and still uniform.

The table below lists four products currently being produced in this type of Proctor equipment.

If you have a wet-solid drying problem—Proctor engineers will consider it without obligation. This, or one of the other basic continuous systems, may be your answer. Thorough investigation will tell. In the meantime, if you'd like to know more about Proctor continuous conveyor drying for wet-solids, write for either or both of the books listed below.

BOOKLETS TELL STORY OF CONTINUOUS CONVEYOR DRYING



Case histories of 11 installations of Proctor continuous conveyor dryers combined with preforming feeds. Complete details on how systems apply to 11 different products.



Lucid explanation of the principle of "preforming" and continuous conveyor drying, as particularly applied to the chemical process industries.

Products Preformed by Fin Drum Feed—Dried in Proctor Continuous System

MATERIAL	PRELIMINARY EQUIPMENT	METHOD OF PREFORMING	MOISTURE CONTENT AT BEGINNING OF CYCLE (B.D.W.B.%)	DRYING TIME	MOISTURE CONTENT AT END OF CYCLE (B.D.W.B.%)	HOURLY CAPACITY (C.D.W.†)
Calcium carbonate	Continuous filter	Fin drum sticks	122%	32 min.	0.25%	2750 lbs.
White lead	Continuous filter	Fin drum sticks	69.3%	114 min.	0.075%	1500 lbs.
Magnesium carbonate	Continuous filter	Fin drum sticks	565%‡	29 min.	1.0%	500 lbs.
Lead arsenate	Continuous centrifuge	Fin drum sticks	58.5%	71 min.	0.5%	1000 lbs.

‡This means 5.65 lbs. of water per 1.0 lb. dry material

*Bone Dry Weight Basis

†Commercial Dry Weight

When inquiring check CP 5789 on handy form, pgs. 2-3



Save money, space, weight with SPEEDAIRE

SPEEDAIRE is Cleveland's new fan-cooled, worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to double the horsepower of standard worm units of equal frame size. For full description, rating tables, etc., send for Catalog 300. The Cleveland Worm & Gear Company, 3257 East 80th Street, Cleveland, Ohio.

CLEVELAND
Worm Gear
Speed Reducers

When inquiring check CP 5790 on handy form, pgs 2-3

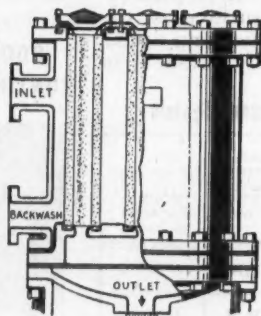
ADAMS PORO STONE FILTERS

for High-Degree Crystal-Clear
Filtering of Corrosive Chemicals
CFR (Rubber-lined) CFL (Lead-lined)

Adams Filters are completely enclosed for safety—yet installation is simple and tubes may be inspected or removed without dismantling the filter. All parts in contact with the acid are inert to its action.

Filter tubes are easily and speedily cleaned by backwashing, and may be repeatedly cleaned and used. There is full reclamation of the filtered acid.

Descriptive Circular 303 gladly mailed. A test in your plant of Poro-stone tubes operating under your actual conditions can be arranged on request.



R. P. ADAMS CO. INC. 243 E. PARK DRIVE
BUFFALO 17, N. Y.

When inquiring check CP 5791 on handy form, pgs. 2-3

Processing Equipment

Perspiration-retaining Head Band Increases Worker Efficiency

*Prevents drippage into eyes, goggles, glasses;
promotes worker comfort*

USES — Perspiration-retaining head band for hot jobs to prevent perspiration from dropping into eyes, goggles, and to provide a cooling effect to worker.

FEATURES — Furthers working comfort and efficiency.

DESCRIPTION — The Coolband is a continuous, comfortable band of soft, sponge rubber which is worn around head. Light-weight. May be thoroughly cleaned by hand-squeezing in soapy water; may be sterilized by same method, using customary germicidal solutions.

SOURCE — Coolbands are a product of the Mine Safety Appliances Co., Dept. CP, Braddock, Thomas and Meade Streets, Pittsburgh 8, Pa., . . . or for more information check CP 5792 on handy form, pages 2 and 3.

*

Automatic Injection Machine Molds 40 oz. Acetate per Cycle

*Handles 32 oz. polystyrene per cycle; mold clamp
works rapidly but won't damage product*



40-oz. injection molding machine. Compare size to man standing to right

USES — Mass-produces refrigerator parts, toilet seats, large radio cabinets, other large-area parts molded with all types of thermo-plastic materials (vinyl-vinylidene chloride requires special alloy heating chamber).

FEATURES — Molds 40 oz. of acetate or 32 oz. of polystyrene per cycle. Entirely automatic operation; only removal of molded parts by operator is required after automatic ejection from mold.

Mold clamp design permits rapid action without damage to molded part due to die slam, and allows molder to quickly and easily change molds without compensation for different mold thicknesses.

Convenient handwheel controls provide for independent adjustment of injection pressure and mold clamp pressure. Speed of both injection plunger and mold clamp is also independently adjustable.

DESCRIPTION — Single nozzle injection machine. Weighs 82,000 lb., is 264" long, 60" wide. Heating chamber for plasticizing molding material is over 3' long. Two of manufacturer's Hydro-Power variable-displacement; radial, piston-type hydraulic pumps generate operating pressure. Oil is pressure medium.

Mold clamp consists of large hydraulic double-acting ram



HOLDING RUBBER PATCHES WITH VACUUM

When these rubber patches pass under the motor driven wire brushes, they are held flat and firmly by the Spencer vacuum producer shown underneath the machine. This is another automatic use of built-in vacuum.

Spencer equipment is also used to clean and deflate rubber goods and to furnish air pressures up to 10 lbs. for testing rubber boats, inner tubes and other rubber products. Spencer Vacuum removes large quantities of talc from floors, walls, ceilings and machinery in rubber plants.

354-V

150 USES FOR VACUUM...ASK FOR BULLETIN
SPENCER VACUUM
HARTFORD CLEANING
THE SPENCER TURBINE COMPANY, HARTFORD 6, CONN.

When inquiring check CP 5793 on handy form, pgs. 2-3

USE HEADED AND THREADED FASTENERS FOR
ECONOMY AND RELIABILITY



?? LOOKING FOR ??
Stainless Steel
BOLTS
and
STUDS

We fabricate every standard alloy steel into bolts, studs and many special fastenings. Accurately made in standard dimensions or to meet your specifications.

BETTER BOLTS SINCE 1882—
A full line in carbon steel, heat-treated alloy steels, stainless steel, silicon bronze, brass, bronze, and monel metal.

PAWTUCKET
MANUFACTURING COMPANY
327 Pine Street Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS

When inquiring check CP 5794 on handy form, pgs. 2-3

Processing Equipment

fitted with small internal booster ram for fast closing of mold. Die slam is eliminated through automatic slow-down which takes place just prior to mold contact. Mold opens slowly until molded part releases itself from stationary mold half, then mold travel is rapid. Speed is again retarded prior to ejection of molded parts to protect them from damage.

Slow-downs can be used at option of operator. Return stroke of mold clamp is readily adjustable to permit shortest possible die travel for each specific part molded. This promotes fast production cycle.

Rate of injection is 1330 cu. in. per min. Following are more data:

Injection pressure on material (max.)	20,000 psi
Injection Plunger Diameter	4-3/4"
Injection Plunger Stroke	14"
Injection Plunger Speeds (in./min.):	
Fast Advance	180
Injection (constant)	75
Return	125

SOURCE — This 40-oz. injection molding machine was developed by The Hydraulic Press Mfg. Company, Dept. CP, Mount Gilead, Ohio . . . or for more information check CP 5795 on handy form, pages 2 and 3.

Army-type Grease Fittings Keep Dirt Out, Permit Standardization

All-purpose ball-in-head design affords maximum lubrication with minimum pressure



All-purpose grease fitting

USES — All-purpose grease fittings. Originally developed for US Army Ordnance Dept.

FEATURES — Keep dirt out of bearings. Provide maximum lubricant volume with minimum pressure.

Incorporate desirable characteristics of various types of high pressure fittings while permitting standardization on one all-purpose unit. Do not obsolete

couplers and grease guns in general use today, and can be securely contacted by all commercial hydraulic couplers. Head can be wiped clean without forcing dirt into fitting or bearing.

DESCRIPTION — Available in wide range of styles and sizes. Flush ball-in-head check. Enlarged neck-size and projecting locking pad. Special spring design prevents compression of spring to restrict flow of heaviest lubricants. Large grease passage permits abundant lubricant flow and requires minimum pressure to clear fitting. Bulletin 209 contains additional details.

SOURCE — Manufactured by Lincoln Engineering Company, Dept. CP, 5701 Natural Bridge Ave., St. Louis 20, Mo. . . . or for more information check CP 5796 on handy form, pages 2 and 3.

JUNE, 1948

up to 45 tons per hour packed in thrifty multiwalls — contents sealed in!

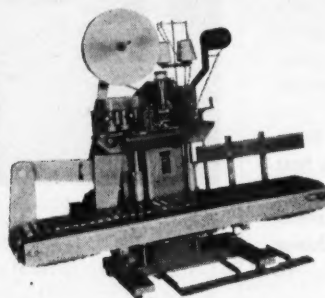
Sealed is the word for it! Your chemicals can't sift out of multiwalls that are closed with Bagpakers.® No moisture gets in or out, and the closures are uniformly strong . . . proof against rough handling or dropping.

If you already have efficient filling and weighing equipment, check the "DA" Bagpaker for applying the famous "cushion-

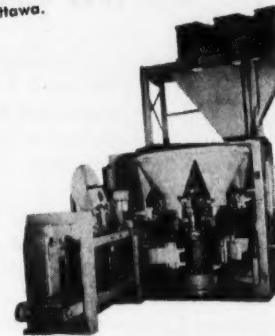
stitch" taped closure. Or where you want completely automatic operation, get the facts on Model "A". Used with free or semi free-flowing materials, the Model "A" is your central packing point . . . saves labor and gives away weights . . . cuts bag costs. Bagpakers handle from 25 to 45 tons per hour—consistently. Talk it over with a nearby Bagpak engineer, or write for proposal.

INTERNATIONAL PAPER COMPANY, Bagpak Division, 220 East 42nd St., New York 17
Branch Offices: Atlanta, Baltimore, Boston, Chicago, Cleveland, Baxter Springs, Kans., Los Angeles, New Orleans, Philadelphia, Pittsburgh, St. Louis, Syracuse.
In Canada: Continental Paper Products, Ltd., Montreal, Ottawa.

This is the "Cushion-Stitch" with TAPED CLOSURE



MODEL "DA" (portable)—One operator, filling and closing, can handle 2 to 4 100-lb. bags a minute . . . 6 to 12 a minute where filled bags are delivered to BAGPAKER conveyor (quickly adjustable for various bag sizes). Starting and stopping of sewing operation is automatic, no tape wasted.

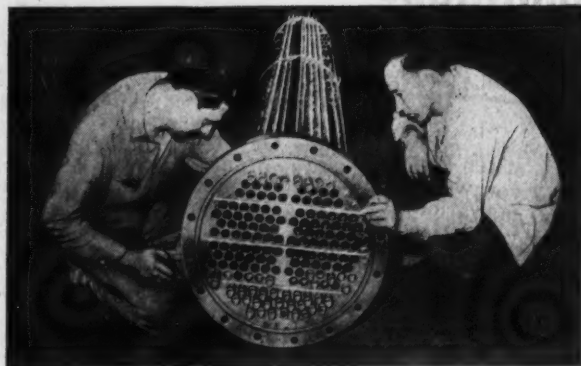


MODEL "A"—Completely automatic—extremely accurate weighing. Saves on "give away" material, labor and bag costs, thus paying for itself quickly. Machine capable of filling and closing 100-lb. bags at the rate of 15 per minute . . . needs one operator.

BAGPAK
DIVISION

When inquiring check CP 5797 on handy form, pgs. 2-3

STAINLESS TUBING IS **BEST** WHERE CORROSIVE ATTACKS ARE **WORST**



B & W

**makes ANY type
you need**

... Seamless and Welded

No tubing material can withstand so many corrosive conditions so effectively as stainless steel. It is corrosion's arch enemy. Its chemical resistance makes it impervious to the action of petroleum products and many other media, hot or cold. It lasts indefinitely in many services because it is stainless from inside to outside.

From the wide range of B&W Croloy Stainless Steel Tubes you can get the analysis having the properties best suited for any specific set of service conditions—the best economic balance between initial cost and operational efficiency. For Stainless Croloys embrace the widest choice of grades and analyses available from a single source—in both SEAMLESS AND WELDED types.



**when tough jobs call
for Stainless Tubing**

**BABCOCK
& WILCOX**
**SEAMLESS
& WELDED TUBES**

THE BABCOCK & WILCOX TUBE COMPANY
GENERAL OFFICES: BEAVER FALLS, PA.
PLANTS: BEAVER FALLS, PA. AND ALLIANCE, OHIO.

TA 1378 S

When inquiring check CP 5798 on handy form, pgs. 2-3

Page 90

Processing Equipment

Ion Exchangers; Correct Applications, Advantages, Characteristics Shown in Bulletin

Resin, greensand and synthetic aluminosilicate gel zeolites are described. Data on a line of resin anion exchangers are included. Suggestions for proper application are pointed out. Attention is given to correct ion exchanger selection for specific water conditions and plant requirements. Literature contains diagram showing zeolite softener setup. Bulletin 13.

Issued by Liquid Conditioning Corp., Dept. CP, 114 E. Price St., Linden, N. J. When inquiring, specify CP 5799 on handy form, pages 2 and 3.

★

Compressors Customized to Air Conditioning, Refrigerating Need

*Improved compressors assembled with chosen
component parts of system to fit exact needs*



New compressor (top left) installed in unit

USES — Reciprocating compressors used in air conditioning and refrigeration units.

FEATURES — Constructed so that they can be conveniently assembled in more than 1,000 different combinations with required motor, base, coupling, condenser to provide a "custom tailored", complete unit which fits exact requirements of specific job.

According to manufacturer, machines operate at higher speeds and are about half the size and weight of former units. Other features are: positive pressure lubrication; magnetic oil cleaning, besides filter and strainers, to pick up metallic particles in oil; external control of capacity; vapor-cushioned valves for quieter, longer operation; easily replaceable moving parts, including cylinder sleeves and pistons; vapor-cooled cylinders; oil-cooled shaft; reversible oil pump.

Compressors are said to be practically vibrationless. Built-in automatic load leveler varies capacity of compressor in direct response to suction pressure, thereby saving water and horsepower on partial loads.

DESCRIPTION — The single customized units are available in sizes ranging from 3 hp, 2 cylinder, 2 1/2" bore, 2" stroke model to 50 hp, 8 cylinder (6 controlled),

Nicholson Simplicity Enables You to

STOP Adjusting Steam Traps

Nicholson traps require no adjustment or change of valve and seat from 0 to 225 lbs. This feature proves an exceptional trouble-saver in plants with many and varied trap applications. With these other 5 features, it accounts for the increasing standardization on Nicholson traps: 2 to 6 times average drainage capacity; operate on lowest temperature differential; no freeze-ups, air binding, nor water-logging.

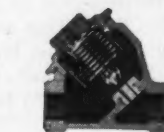
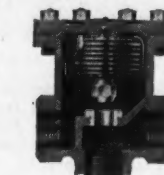
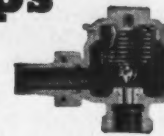
5 TYPES FOR EVERY PURPOSE:

power, heat, process; size 1/4" to 2"; steam press. to 225 lbs. Also weight and piston-operated traps for steam, air, gasoline; press. to 1500 lbs. Expansion steam traps for press. to 225 lbs.

W. H. NICHOLSON & CO.

181 Oregon St., Wilkes-Barre, Pa.
Valves ★ Traps ★ Steam Specialties

BULLETIN 1047
Is a valuable reference on advanced drainage methods. Or see Sweet's.



When inquiring check CP 5800 on handy form, pgs. 2-3

CLEAR LIQUID PUMPS

IN WIDE RANGES OF CAPACITY AND HEAD

*Double Suction, Single and Two Stage Centrifugal
Axial and Mixed Flow, Deep Well Turbine*

AXIAL FLOW—a large volume, low lift, submerged pump, designed for flood control, dewatering, drainage, irrigation, condenser circulation, primary municipal pumping, dry dock dewatering. 500 to 10,000 GPM at heads from 5 to 25 feet. Dilution of lubricant and corrosion or abrasion of bearing surfaces by seepage of pumped liquid into lower bearing is prevented by an exclusive (patented) vacuum arrangement in the propeller which relieves high pressure on the grease seal. Write for details.

**DOUBLE
SUCTION**



For a wide range of applications in clear water supply and clear liquid transfer. Split case, ball bearing design. Enclosed type, bronze impeller with all water passages hand finished and exterior surfaces machined. Capacities from 50 to 7000 GPM. Heads from 25 to 250 feet. Bulletin No. 248.

Engineering Service—American pumps are designed to perform within definite ranges of capacities and heads, under specified conditions. Our engineering staff is well qualified to cooperate with industrial and operating engineers in selecting pumping equipment.

American Well Works

122 No. Broadway, Aurora, Ill. • Research, Engineering, Manufacturing
Pumping, Sewage Treatment, and Water Purification Equipment

When inquiring check CP 5801 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Processing Equipment

3/4" bore, 2-3/4" stroke models. Choice of 1750, 1450, 1160 rpm in all cases. All models are water-cooled or evaporation-cooled.

Dual units are furnished for higher capacity in small space. These come in 60, 75 or 100 hp sizes, having 10, 12, 16 cylinders (7, 8, 12 controlled), respectively. All have 3/4" bore, 2 3/4" stroke and speed of 1750 rpm.

SOURCE — These improved, customized compressors are manufactured by the Carrier Corporation, Dept. CP, Syracuse, N. Y. . . . or for more information check CP 5802 on handy form, pages 2 and 3.

★

Constantly Removes Condensate Under Vacuum or Pressure

Standard drainers discharge 1100-367,000 lbs. per hr.; external-cage discharge 3200-820,000

USES — Multiport drainers for removing large quantities of condensate, under vacuum or positive pressures, from evaporators, heaters, separators, coils or steam lines. For continuous or intermittent discharge. Also single-port models for draining steam separators and similar uses.

For higher pressures, or for increased flexibility in handling applications where it may prove desirable to control effluent of a pump or heat exchanger from its influent supply level, an external-cage drainer is available. This is also useful as a feed regulator controlling inlet supply to evaporators, stage heaters, etc. It is better suited for control of contaminated condensate than the standard drainer.

FEATURES — Large discharge capacity. Absolute valve balance. Instant response. Only one moving element. Removable valve seat. Glass gauge shows condensate-height. Complete valve accessibility. Position handle permits opening or closing valve; full opening serves as effective blow-off.

In addition to sharing the above features with the standard multiport drainers, the external-cage type has operating power substantially double that of the standard unit.

DESCRIPTION — Condensate is discharged through multipleport openings of float-controlled rotary valve, with continuous discharge maintained at a rate determined by height of condensate in body. Both standard and external-cage drainers are made in 5 sizes. Connections for standard unit range from 1-1/4 to 5" diam. for pressures to 200 psi. Connections for external-cage drainer range from 1-1/2 to 6" diam. for pressures to 300 psi.

For applications such as draining steam separators, where condensate flow is only a small percentage of steam flow, a single-port design is available in the 2 smaller sizes.

Discharge capacities range from 1100 to 367,000 lbs. per hr. (full port area), and from 3200 to 820,000 lbs. per hr., for standard and external-cage drainers, respectively. In standard units, valve member is outside rotary type for vacuum service or positive pressures up to 60 psi; for pressures up to 200 psi, inside rotary type is employed.

Float-arm of external-cage unit is longer, giving increased leverage for greater operating power, handling of concentrated boiler water and other contaminated fluids. Publication 4340 contains additional data.

SOURCE — Produced by Cochrane Corporation, Dept. CP, 17th St. & Allegheny Ave., Philadelphia 32, Pa. . . . or for more information check CP 5803 on handy form, pages 2 and 3.

JUNE, 1948

ALTERNATE

HEATING COOLING

with **Dopp**

SEAMLESS JACKETED KETTLES and MIXERS

IN BATCH PROCESSING OF:

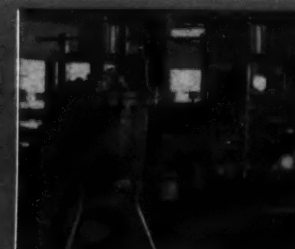
RESINS • SOAPS • GREASES • PHARMACEUTICALS • PLASTICS • ADHESIVES • FOOD PRODUCTS and many others



THE NEW DOPP-BUFLOVAK KETTLE
WITH ENCLOSED DOUBLE MOTION
AGITATOR DRIVE UNIT



VITAMIN PLANT



EXPERIMENTAL KETTLE

WHEREVER mixing, heating, or cooling is an operation in batch processing this Dopp equipment unit shortens operating time and gives better heat transfer. In some actual case histories of Dopp Kettles operating time has been cut 75%. These savings result from the "scraping agitator" that cleans the heating surface as it mixes the product.

Because the Dopp Kettle can be furnished for alternate heating and cooling applications it saves material handling and eliminates extra pieces of equipment. This is a profitable advantage in many industries because cold water can be run through the jacket very quickly after the steam is shut off and pressure released. This method can also be employed to prevent over-heating the product or to check a reaction.

A TYPE FOR YOUR SPECIFIC NEEDS

Dopp-Buflovak Kettles are available in Seamless Jacketed or Single Shell construction with standard covers for pressure or vacuum operation. Holding capacities can be increased by the addition of jacketed or single shell belts depending on your needs. Various types of outlets can also be provided. Kettle sizes range from 15 to 1700 gallons capacity. Write us today about your specific needs.

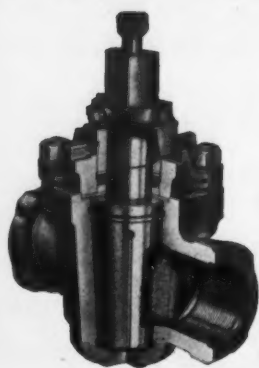
BUFLOVAK EQUIPMENT DIVISION

OF BLAW-KNOX COMPANY

1645 FILLMORE AVE., BUFFALO 11, N. Y.

When inquiring check CP 5804 on handy form, pgs. 2-3

4-WAY VALVE PROTECTION



"Sealdport" lubrication
in Nordstrom Valves

1. Seals the valve
2. Prevents sticking
3. Protects the seat
4. Prolongs valve life

Lubrication is necessary to assure perfect valve performance in chemical services. The design and characteristics of Nordstrom valves make operation positive and guard against corrosion and erosion. Ask for descriptive Bulletin.

NORDSTROM *Lubricated* PLUG VALVES

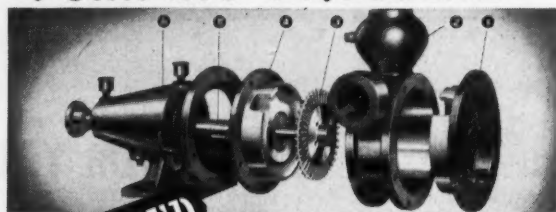
NORDSTROM VALVE DIVISION —
Rockwell Mfg. Co.

400 North Lexington Ave., Pittsburgh 8, Pa.
Sales Offices in principal cities.



When inquiring check CP 5805 on handy form, pgs. 2-3

PUMPING PROBLEMS*



SOLVED

**IN
ROTH PUMPS!**

Look at these features:

1. Outboard head—easily removed.
2. Case—can be rotated for various positions.
3. Impeller—self adjusting, no seizing at high temperatures.
4. Inboard head—only one packing box.
5. Stainless steel shaft.
6. Heavy cast iron frame.

Stainless steel heads, impeller, and case available.

- Flexible coupled and close coupled pumps in stock. • Complete boiler feed and condensate return units in stock. • Motors in stock, up to 25 HP. • Special designs engineered and manufactured to order.

Write for catalogs 1 & 2.

ROY E. ROTH COMPANY • 2474 Fourth Avenue • Rock Island, Illinois

ROTH PUMPS

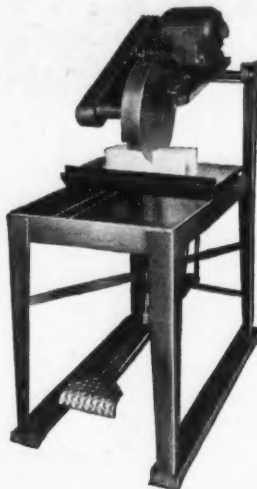
When inquiring check CP 5806 on handy form, pgs. 2-3

Page 92

Processing Equipment

Wet or Dry-cutting Saw Scores, Cuts All Masonry, Ceramics

1-1/2 hp unit has self-contained water system;
cutting-head locks down or is foot-operated



Wet or dry-cutting masonry saw

USES — Wet or dry-cutting saw for all types of masonry and ceramic materials. Uses either abrasive masonry-cutting or diamond blades.

FEATURES — No outside hose connections or drains. Fast and accurate, with sufficient power for cutting the hardest materials. Ease of operation plus long blade life.

DESCRIPTION — 1-1/2 hp totally-enclosed ball bearing motor. Cutting-head can be controlled by foot-pedal, or head can be locked down tightly for either cutting or scoring. Unit has self-priming centrifugal pump with self-contained water system.

Pump has rubber impeller, and is designed to pump dust

and grit picked up by coolant. Except when cutting chemically-bonded brick, water is used as coolant. All belts are covered. Blade guard gives maximum protection, is hinged, and easily thrown back for quick blade installation or removal. Sealed conveyor cart bearings guard against moisture and corrosion.

Manufacturer recommends "Jade" blades for abrasive cutting with new model. D-250, a segmented diamond blade; or D-100, a kerfed diamond blade, is recommended for cutting dense, hard ceramic materials having a fine aggregate.

SOURCE — Model R masonry saw is produced by Champion Manufacturing Company, Dept. CP, 2028 Washington Ave., St. Louis 3, Mo. . . . or for more information check CP 5807 on handy form, pages 2 and 3.

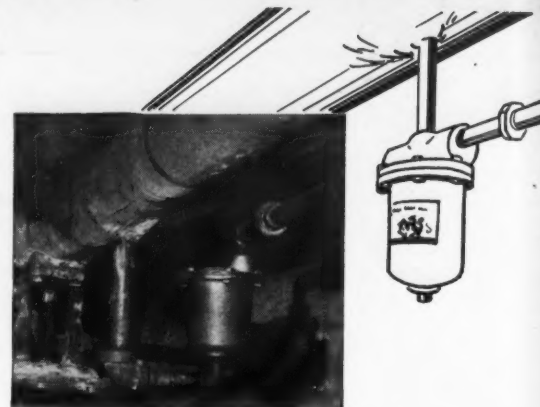
★

Reports Paper Pulp Beater Design Thirds Cycle Time

Complete description of manufacturer's "Victory Beater" for paper pulp fibre treatment is provided in 4-page, 2-color folder. Operation of beater's component parts — roll, which is out of tub in fixed position; multiple bedplate, under center of roll; automatic hydraulic adjustment to control bedplate pressure against roll; tub; stock flow controllers; breaker agitator and circulator — are shown on assembly diagram.

Uses and description are provided in text. Full page is devoted to illustration, description and uses of the breaker. Manufacturer claims that beating cycle is reduced to one-third of what it usually is, by the incorporation of new design features.

Folder VB-1, issued by The Noble and Wood Machine Co., Dept. CP, Hoosick Falls, N. Y. When inquiring specify CP 5808 on handy form, pages 2 and 3.



That could be simplified with SUPER-SILVERTOP

Even a simple installation such as dripping a main, can be simplified with a Super-Silvertop inverted bucket Steam Trap. Notice the saving in fittings, think of the difference in installation time. Even if you included a strainer the simpler job would use less fittings.

Super-Silvertop traps have no cored passages, can be used either as an elbow or straight-in-line, are years ahead in engineering advantages. Let us tell you more about the details and advantages of Super-Silvertop Traps—write for a copy of "How To Choose A Steam Trap," a helpful, useful book that is sent free on request.

THE V. D. ANDERSON COMPANY
1954 West 96th Street • Cleveland 2, Ohio

When inquiring check CP 5809 on handy form, pgs. 2-3

GREAT IDEA



new peelable stickers

to carry { INSTRUCTIONS WARNINGS
SALES FEATURES TRADE-MARKS

Manufacturers everywhere are switching to Kum-Kleen Self-Adhesive Labels. Here's why: They're new, different, far more efficient. Adhere firmly to any smooth surface—metal, plastic, glass, wood, painted or varnished.

Won't dry out, curl, pop or fall off—yet peel off easily in one piece without leaving a trace.

Now—place instructions, warnings, trade-marks, describe finishes and point out features directly on the product at the exact place such data should be carried.

And when they've served their purpose, Kum-Kleen Stickers peel off without scraping—a feature your customers appreciate.

Kum-Kleens are quickly applied without moistening—are available in any size, shape or color, printed to your specifications. Write today for free samples to Dept. CP-6.



EVERY ADHESIVE LABEL CORP., Monrovia, California; 41 Park Row, N. Y. 7; 608 S. Dearborn Street, Chicago 5; 2930 W. Grand Blvd., Detroit 2, and all principal cities. Canada: Enterprise Sales, Toronto.

When inquiring check CP 5810 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Processing Equipment

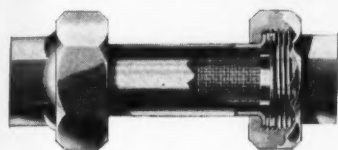
Pipeline Strainer Cuts Volume, Friction Loss

Prevents sediment entering supply line when cleaning

USES — Strainer for use on water, steam, oil, air and gas supply lines.

FEATURES — Eliminates volume and friction losses, also turbulence. Easy and infrequent cleaning. Prevents loss of sediment into supply line when cleaning.

DESCRIPTION — Consists of bronze couplings, copper tube body, monel metal screen and asbestos



Removable pipeline strainer

neoprene gaskets. Three selections of piping methods include female iron pipe, flared copper tube, and solder connection.

Passages are unrestricted, with no flow offset. Unit performs as coupling joint, eliminating need for union coupling. Entire unit removes for cleaning.

SOURCE — Product of Hays Manufacturing Company, Dept. CP, Erie, Pa., . . . or for more information check CP 5811 on handy form, pages 2 and 3.

★

Metallographic Polishers Are Floor or Table-type

Floor and table-model metallographic polishing machines for laboratories are shown and described in a 4-page bulletin. Equipment includes AC and DC units for 500, 650 or 800 rpm, also other speeds. Floor models are 1, 2 or 3 spindles with 1 or 2 monel wash bowls.

A micro hardness tester for use with metallurgical microscope is included. Bulletin 90-11, issued by Eberbach & Son Company, Dept. CP, Ann Arbor, Mich. When inquiring specify CP 5812 on handy form, pages 2 and 3.

For more information on product advertised at right, specify CP 5813 . . . use information request blank between pages 2-3.

Do you have a problem that HONAN-CRANE EQUIPMENT can solve?



The NEW *Houdaille CONVEYOR

Collects—Transports for disposal or processing, any type of solid or fibrous material that will settle to the bottom of a tank. It eliminates expensive, laborious, time-consuming manual methods.

How Can You Use This Conveyor?

There are hundreds of applications for this continuous automatic conveyor. It is already proved by installations now operating in the metal working and other fields. Here are some suggested uses:

METAL WORKING

(wet or dry)
Metal Chips
Cast Iron Dust
Aluminum and Iron Oxide
Abrasive Sludge

SETTLING TANKS

Contamination
Scale

FOUNDRIES

Foundry Sands
Slag

PACKING PLANTS FOOD PROCESSING SOAP MANUFACTURING

Cracklings and Similar
By-products
Soaps

REFRACTORIES

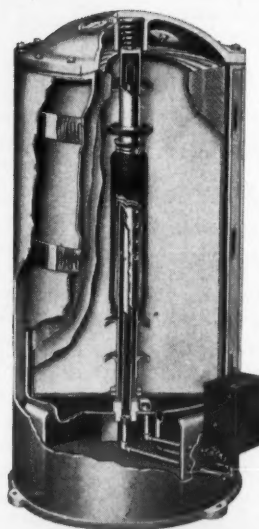
Ceramic Powders
Aggregates
Refractory Materials
Cement

MANY OTHERS—

such as Coal, Fly Ash, etc.

*Pronounced "Hoo-dye"

Flights are made of oil-resistant neoprene reinforced by steel backing plates. Chain and flights travel through 4", 6" or 8" standard iron pipe and are pulled by a high torque gear transmission enclosed in an oil-tight gear case.



HONAN-CRANE OIL PURIFIERS

will remove any type of contamination from lubricating oils used in diesel engines, turbines, compressors, etc., also insulating oils. Complete purification results in less maintenance, longer equipment life. Savings in reduced maintenance cost and oil consumption will more than pay for the Purifier.

HONAN-CRANE CORPORATION 224 Wabash Avenue, Lebanon, Indiana

Please send complete information on HONAN-CRANE

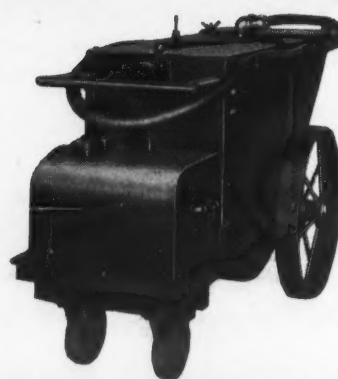
☐ Houdaille Conveyors ☐ Oil Purifiers ☐ Sump Cleaners

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____



HONAN-CRANE SUMP CLEANER

A portable unit for removal of chemical liquids and residue or oil and sludge from tanks, vats, barrels, machine tool sumps, etc. A three-way valve immediately converts this unit from suction to discharge, thus making the unit a convenient vehicle for dispensing clean oil and other liquids. A merco liquid level control prevents overflow and spillage . . . large drain valve provides for drawing off soluble liquid. Tank can be tilted for quick dumping of contents.

A subsidiary of

HOUDAILLE-HERSHEY CORPORATION



Production Rises Sharply When Drive Slippage Eliminated on 60-Ton Grinder

This ponderous tube mill of a large Wisconsin quarry pulverizes crushed stone into 100-mesh fineness for making agricultural lime. Loaded, the mill weighs 60 tons! Starting it from a dead stop and keeping it turning as chunks of stone resist the grinding action requires a drive with terrific pull. The original drive couldn't deliver... slipped constantly... slowed production seriously. According to the plant superintendent "the belt was off the pulley more than it was on". On the recommendation of the local Dayton V-Belt Distributor a drive of 17 standard Dayton E-section V-Belts was installed.

This was four years ago. Since then

slippage has been completely eliminated, there has been no stalling of the tube mill and production has risen sharply.

Your local Dayton V-Belt Distributor can assist you in solving similar power transmission drive problems. With his specialized knowledge he can correct nearly 95 per cent of all power drive troubles by using standard Dayton V-Belts and the power drive accessories that he stocks. If additional engineering knowledge is needed he can quickly secure the aid of a Dayton Power Transmission engineer. So for prompt, profitable solutions to your drive problems call your local Dayton V-Belt Distributor.

THE DAYTON RUBBER COMPANY

Main Office and Factory: Dayton 1, Ohio

Branch Offices: Atlanta, Boston, Chicago, Cleveland, Dallas, Detroit, Los Angeles, Minneapolis, New York, Philadelphia, St. Louis



V-Belt Buyers! A leading mill supply house near you offers specialized Dayton V-Belt service. Look for the name under the trade name heading "Dayton V-Belts" in the yellow pages of your telephone directory.

Dayton Rubber

When inquiring check CP 5814 on handy form, pgs. 2-3

Processing Equipment

Catalog Illustrates, Describes Large Number of Motor Controls, Accessories

Specifications, applications and illustrations of manufacturer's line of motor controls and accessories are presented in 16-page catalog. Included are: air compressor, float, foot, hoist, limit, magnetic reversing and magnetic chuck switches; multi-throw, pressure, pilot foot, reversing foot, thermal overload switches. Also shown are: cam-type multi-speed and cam-type reversing controllers; four-speed, three-speed, two-speed, master, explosion-resisting controllers.

Float accessories, heater coils, push-button stations, star delta switches and weatherproof enclosures are listed. Specifications are presented in tabular form to promote easy reference. Catalog 48, issued by the Furnas Electric Co., Dept. CP, Batavia, Ill. When inquiring check CP 5815 on handy form, pages 2 and 3.

Automatic Clutch Features No-load Acceleration

Simple, variable-pitch diameter unit gives built-in transmission-effect

USES — Variable-pitch diameter clutch, especially adaptable for pulling loads requiring a high starting torque. Also functions as a variable-pitch pulley.

FEATURES —

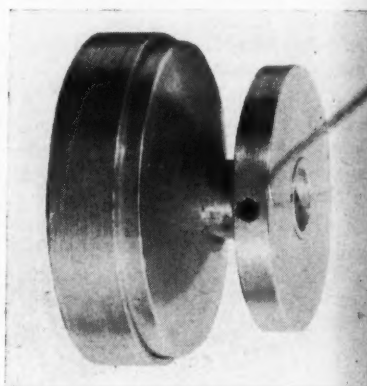
No pawls, toggle levers, collars, adjusting screws, pivots, plates, face-linings, bearings, forks or fingers. No adjustment mechanism. V-belt becomes the non-metallic portion of friction assembly, and installing a new belt between clutch pulley and driven pulley replaces only wearable part of clutch. Sealed construction prevents tampering with engaging mechanism.

Automatic operation. Simple and easy to install. Clutch pulley produces almost no drag or creep at disengaged speeds. Engaging mechanism has wide range of movement automatically compensating for wear and stretch of belt when proper length belt is used. Belts can be changed quickly, without changing center-to-center distance between pulleys.

Since engine engages load at an advantage, starting speed can be reduced. Less power is lost through friction, and greater overall efficiency is realized. Engagement is cushioned, smooth.

DESCRIPTION — Unit includes built-in key and locking set-screw. V-pulley is part of clutch. To install, place clutch on engine shaft and tighten set-screw. Since clutch operates in either direction, either clutch body or pulley-end can be installed next to engine.

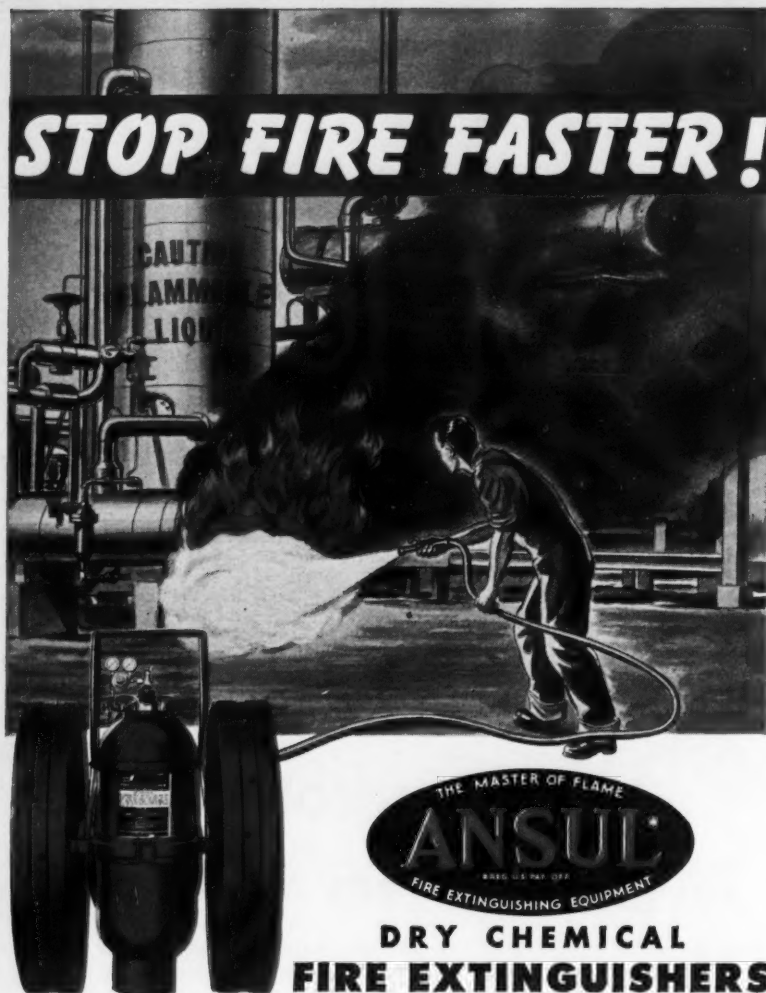
Speed of engagement or disengagement is predetermined by design, and can be adjusted during manufacture to



Variable-pitch diam. automatic clutch

Page 95

STOP FIRE FASTER!



THE MASTER OF FLAME
ANSUL
 FIRE EXTINGUISHING EQUIPMENT

DRY CHEMICAL FIRE EXTINGUISHERS

give you **MORE PROTECTION** per dollar

Ansul Dry Chemical Fire Extinguishers give you more protection... pound for pound... dollar for dollar... than any other extinguisher of comparable size.

In addition... Ansul Fire Extinguishers provide the best first-aid protection:

- For hazards involving alcohols, solvents, gasoline, oils, asphalts and greases.
- For electrical equipment hazards.

Ansul Fire Extinguishers have the highest ratings for effectiveness on flammable-liquid fires, based on tests conducted by nationally recognized approval agencies. The longer range stream of dry chemical is effective in winds and drafts.

After use, Ansul Dry Chemical Fire Extinguishers can be recharged "on the spot"... providing continuing protection... and annual recharging of Ansul extinguishers is **NOT** necessary.

Safe to use... non-toxic, non-corrosive, non-abrasive. Ask for your copy of file No. 212. You will receive factual data on how Ansul Dry Chemical Extinguishers will cut your fire protection costs. *Listed and Approved by Underwriters' Laboratories and Factory Mutual Laboratories.*



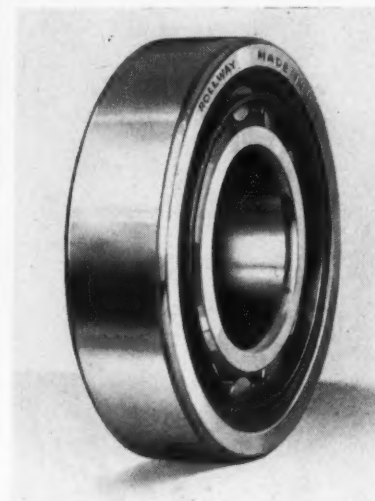
ANSUL CHEMICAL COMPANY
 FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN
 DISTRIBUTORS IN ALL PRINCIPAL CITIES

When inquiring check CP 5819 on handy form, pgs. 2-3

Processing Equipment

Bearing Retains Rollers, Applies with Inner Race Removed

1-piece retainer and interchangeable inner race widen scope of application



Roller bearing with steel retainer

USES — Precision cylindrical roller bearing with steel retainer. For prolonged life and adaptability.

FEATURES — Steel roller retainer correctly guides rollers, assuring long life. Bearing can be applied with or without interchangeable inner race, depending on application.

DESCRIPTION — Retainer framework is one-piece construction. Roller

"pockets" of framework have deep, broad, double flanges, or guide lips, which hold rollers in alignment, even with inner race removed.

Outer race has deep, accurate ring grooves in inside diameter. These hold the heavy snap-rings which retain the roller retainer and rollers in the outer race. Inner race is separate and interchangeable. Additional information pertaining to hardness and case depth of shafts for specific applications without inner race may be obtained from manufacturer's engineering department.

These bearings are manufactured in sizes conforming with SAE standards for roller bearings. Series BE-1200 and BE-1300 correspond to single-row type of the 200 and 300 size, respectively. Series BE-5200 corresponds to the wide type. Catalog lists sizes, discusses shaft hardness, bearing selection and lubrication, etc.

SOURCE — Produced by Rollway Bearing Company, Inc., Dept. CP, Syracuse, N. Y. . . or for more information check CP 5820 on handy form, pages 2 and 3.

★

Self Contained Oil Reclaimers Purify 9-100 Gal. per Hr.; Operation Method Shown

Specifications, floor plans and dimensions of four models, handling 9 to 100 gal. oil per hr., are listed. Approximate operation costs are given. Method of operation is thoroughly described with aid of full-page 3-color diagram. Manufacturer states that equipment may be used to purify vacuum pump, compressor, hydraulic, insulating, turbine, diesel and gas engine lube oils, etc. Employs principle of filtration and vacuum distillation. Unit is self-contained, complete with motor. Photographs are included in bulletin.

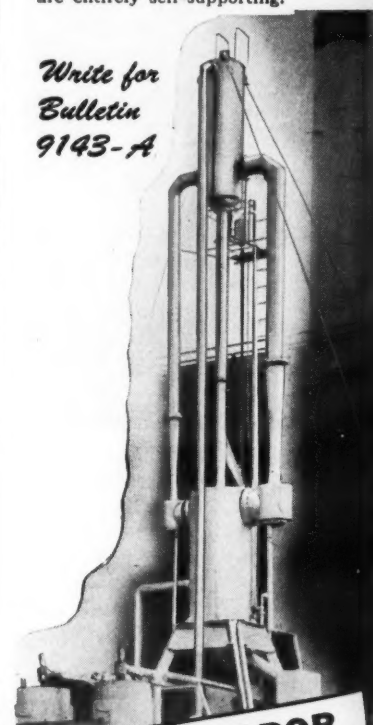
Bulletin R-160 issued by The Hilliard Corp., Dept. CP, Elmira, N. Y. When inquiring check CP 5821 on handy form, pages 2 and 3.

How's your Cold Water Standing the Hot Weather?

If hot weather means that the supply of chilled water for your plant isn't as cold as it should be, then you'll want to know more about Ingersoll-Rand Water Vapor Refrigeration.

In Ingersoll-Rand Water Vapor Refrigeration units, water is the only refrigerant. It is cooled by direct evaporation in a high vacuum created by steam jet boosters. Capacities for single units range from 20 to 1200 tons of refrigeration for chilled water temperatures down to 40°F. . . These units solve their own space problem too, as they can be mounted outdoors. They require a minimum of foundation and are entirely self-supporting.

Write for Bulletin 9143-A

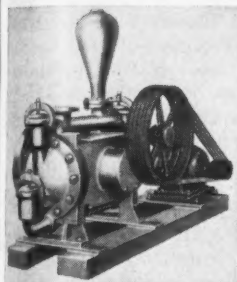


WATER VAPOR REFRIGERATION

Ingersoll-Rand
 11 Broadway, New York 4, N. Y.

When inquiring check CP 5822 on handy form, pgs. 2-3

For Materials Difficult to Pump



Less Maintenance
Simple Operation
No Contamination
No Corrosion or Wear
No Leakage
Easy Cleaning

For corrosive, abrasive, viscous, thick, heavy, valuable, delicate or hazardous materials which may either tend to destroy a pump's mechanism or be injured or contaminated by pumping action — your answer is the Shriver Diaphragm Pump.

The fluid handled does not come in contact with the working parts

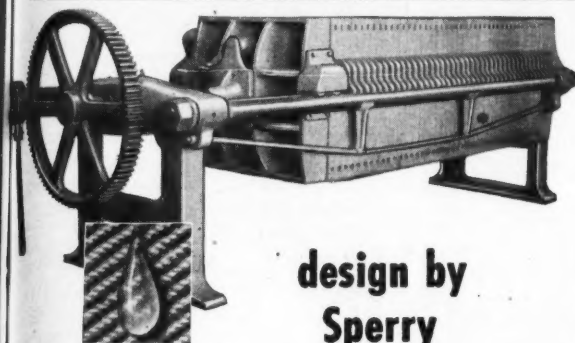
of the pump. Double-acting piston, positive pumping delivers required volume with minimum disturbance. No packings — no leakage; easy to clean; modest upkeep. Capacities 1 to 100 G.P.M. pressure to 100 p.s.i. Built of any metal, rubber or plastic lined. Bulletin 121 on request.

Shriver

DIAPHRAGM PUMPS

T. SHRIVER & CO., INC., 846 Hamilton Street, Harrison, N. J.

When inquiring check CP 5823 on handy form, pgs. 2-3



design by
Sperry

■ If you need filtration equipment, Sperry can supply it. And, on the basis of engineering know how plus actual experience, Sperry will design the most practical and efficient filter press to do your job.

After an analysis of your material has been made and your specific requirements studied, Sperry's modern laboratories reproduce exact conditions under which your material will be filtered. These advanced techniques enable Sperry engineers to develop your filter press design.

Send Sperry a sample of your material for analysis. There's no obligation, and better filtration for your product may result.

D. R. Sperry & Company, Batavia, Illinois

Filtration Engineers for over 50 years

SPERRY

FILTER PRESSES

When inquiring check CP 5824 on handy form, pgs. 2-3

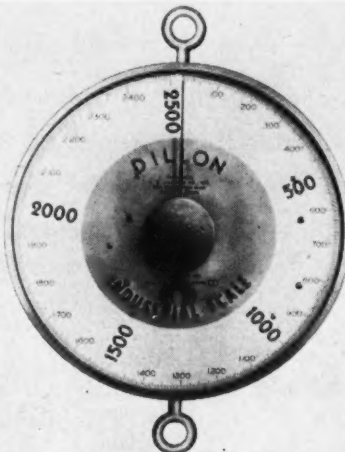
Processing Equipment

Suspended, Portable Scale Uses Beam-Deflection Principle

Accurate to 1% up to 10,000 lb.; not affected by temperature or weather; easily read

USES — Suspended scale for weighing steel bundles, strip-stock coils, castings, hopper charges, boats, lumber, rails, etc., inside or outside.

FEATURES — Accuracy to 1%; not subject to fatigue, or loss of elasticity, which may occur in spring scales. Easily moved from place to place. Large, easy to read dial gives instantaneous reading. Automatically cuts out when top capacity has been reached so it is not injured by overload. Not affected by weather or temperature; enclosed mechanism.



0-2500 lb. portable scale

DESCRIPTION — Operates on principle of beam bending from true straight line. Beam held to tolerance of one thousandth of an inch. Made of extra heavy gauge steels. All parts plated or finished with top grade enamel baked on. Requires no adjusting or oiling. Eye bolt on top and bottom to allow hanging from suitable hook or support, and attachment of load.

Accurate to 1%. Dial and pointer hand protected by strong lucite crystal and aluminum bezel.

Available in following capacities: 0-500 lb. with 1 lb. divisions, 0-1000 lb. with 2 lb. divisions, 0-2500 lb. with 5 lb. divisions, 0-5000 lb. with 10 lb. divisions, 0-10,000 lb. with 25 lb. divisions. All have 15" dial.

SOURCE — W. C. Dillon and Company, Inc., Dept. CP, 5410 W. Harrison St., Chicago 40, Ill., or for more information check CP 5825 on handy form, pages 2 and 3.

★

Compact Service Elevator Speeds Inter-floor Movements of Materials, Personnel

Compact service elevators which require less installation space than a stairway or conventional service elevator are illustrated, described in an 8-page bulletin. Used in warehouses, filtration and paper plants, etc., they are suitable for installation in any building up to 200' high.

Literature describes cost of continuous operation as being 20 to 50 cents per 24-hr. day, depending on total height of unit. Diagrams cover safety measures to be considered. Checking of state safety codes is recommended. Fast, dependable inter-floor transportation of personnel and materials is stressed. Bulletin 06B6878, issued by Allis-Chalmers Mfg. Co., Dept. CP, Milwaukee 1, Wis. When inquiring specify CP 5826 on handy form, pages 2 and 3.

FASTER CUTTING — WET or DRY with CLIPPER MASONRY SAWS



You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save Time — Save Material and assure better workmanship on every job. Yes, you can cut wet or dry with equal ease.



The new HD-48 Clipper cuts dry just exactly the same as regular Clipper Masonry Saws . . . and for DUSTLESS masonry cutting, just turn the control valve and use the circulating water system.

CLIPPERS FOR EVERY JOB Priced as low as \$195 . . . all with the exclusive Clipper design proven throughout the world for 10 years, and . . . guaranteed to provide the fastest cutting Speed with lowest cutting cost.



FREE TRIAL . . . Write for Catalog TODAY!

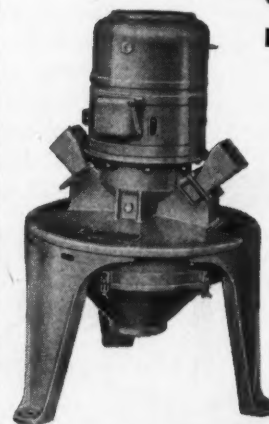
THE CLIPPER MFG. CO.

17 EAST 28th ST. • KANSAS CITY 8, MO.
Philadelphia • Cleveland • St. Louis • Austin, Tex.

When inquiring check CP 5827 on handy form, pgs. 2-3

STOP INSECT SPOILAGE

USE "ENTOLETER"
CONTINUOUS
INSECT CONTROL



Avoid spoilage from insect infestation . . . insure the high standards of your products. You destroy all insect life in free flowing, dry materials with "ENTOLETER" Continuous Insect Control. It's in your interest to send now for new free Bulletin, fully explaining "ENTOLETER" Control. ENTOLETER DIVISION, The Safety Car Heating & Lighting Co., Inc., 1185 Dixwell Ave., New Haven 4, Connecticut.

ENTOLETER

CENTRIFUGAL MACHINES

CONTINUOUS INSECT CONTROL SYSTEM

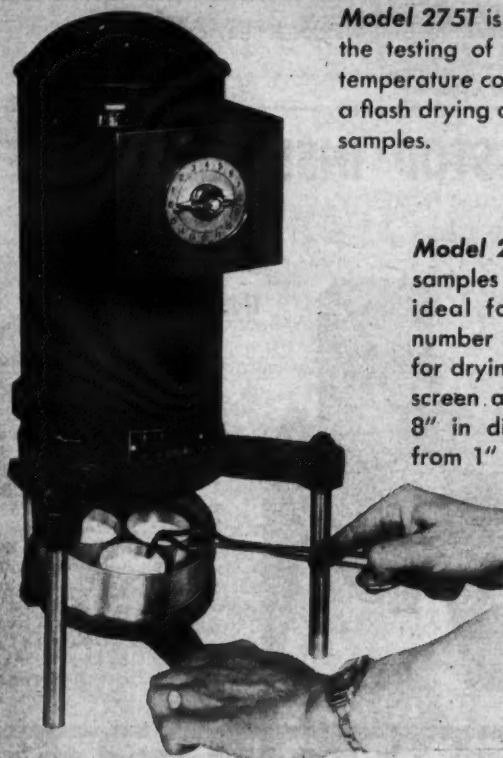
When inquiring check CP 5828 on handy form, pgs. 2-3

FLASH-DRY SAMPLES TO DETERMINE MOISTURE CONTENT



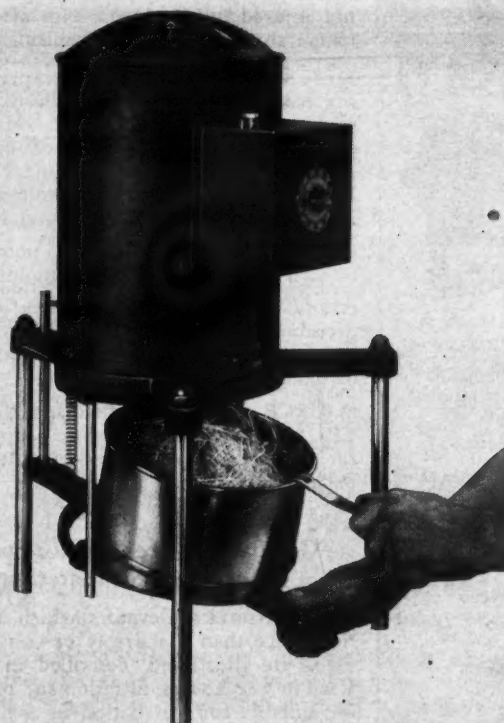
A complete line of Dietert-Detroit Moisture Tellers is available for the rapid, accurate moisture determination of such substances as chemicals, foods, fabrics, grains, sands, fuels, clays, semiliquids and others.

Model 275 is designed for materials not sensitive to drying temperatures. It has a drying pan 5" in diameter holding up to 100 gram samples.



Model 275T is used for all substances, the testing of which requires precise temperature control. It may be used as a flash drying oven for liquids or small samples.

Model 278T is used for bulky samples up to 500 grams. It is ideal for handling a large number of liquid samples and for drying materials in the wet screen analysis. The pans are 8" in diameter and may be from 1" to 4" in depth.



Write for descriptive folder and prices.

Processing Equipment

Synthesis Gas from Brown Coal

Report discusses gasification of brown coal by the Winterschall-Schmalfeldt process to yield gas suitable for Fischer-Tropsch synthesis. Process consists of gasification of dry brown coal dust in entrained state; the heat of reaction is aided by burning producer gas, storing heat in regenerator and then abstracting it by recirculating saturated synthesis gas and oxygen. Sensible heat in final gases is used to dry and disintegrate the dry brown coal. Producer gas is made by gasifying dry brown coal dust in entrained state, using air with a little steam.

Flow sheets, etc., are shown. Comparison is made with Winkler method.

Report PB-78242 sells at \$1.25 per copy. Remit directly to Office of Technical Services, Dept. of Commerce, Washington 25, D. C. Remittance payable to the Treasury of the United States.

Reactor Heating, Agitation, Tailored for Job

Made of any weldable material to ASME Code

USES — Specific needs such as processing of synthetic detergents, insecticides, synthetic organic chemicals, resins, adhesives, glue, pharmaceuticals. Also other products including cellulose products, coal tar products, explosives, rubber compounds.

FEATURES — All necessary equipment for particular requirements are furnished. These include direct or indirect heating by oil, gas, steam, electricity or Dowtherm; heat exchangers, condensers, receivers, piping and valves.

Special consideration is given to correct type of agitation for best results. Turbine, propeller, anchor and paddle agitation, depending on processing problem, are furnished. Variable-speed agitators are also available for processes where viscosities change during run.

DESCRIPTION—Unit made in compliance with ASME Code for any weldable material such as steel, stain-

2897

HARRY W. DIETERT CO.
9330 ROSELAWN AVE., DETROIT 4, MICHIGAN
SAND • MOLD • MOISTURE • SULFUR • CARBON

For more information on product advertised at left, specify CP 5829 . . . use information request blank between pages 2-3.

Processing Equipment

less steel, monel, nickel, inconel and clad steel with any of these materials.

A two thousand gallon capacity agitated reactor built for esterification of sorbitol. Made, in accordance with ASME Code U-69, of stainless steel, type 316 CB clad. Reactor has Dowtherm jacket working pressure of 75 lb. and internal working pressure of 100 lb. and full vacuum. Includes manufacturer's agitator drive, a special wide space anti-friction bearing type allowing operation without step bearing.

Agitator has special curved and pitched blade turbine, with properly designed baffles.

SOURCE — The "Standard Plus" agitated reactor is manufactured by Industrial Process Engineers, Dept. CP, 5202 Hudson Ave., West New York, N. J. . . or for more information check CP 5830 on handy form, pages 2-3.

★

Simplified 3-way Butterfly Valve Diverts, Mixes Gases, Fluids

Economical lever or handwheel-operated units handle maximums of 100 psi, 1800° F.



Simplified 3-way butterfly valve

USES — Simplified 3-way butterfly valve for quick interchange or diversion of flow, or mixing of gases or fluids. For pressures to 100 psi and temperatures to 1800° F.

FEATURES — Economical. Assures low pressure drop

and low maintenance. Can be lever or handwheel-operated, also automatic.

DESCRIPTION — Consists of 2 butterfly valves and a tee, with valves interlocked so that closing of one vane opens the other in any proportion. For larger pipe sizes, roller chain and sprocket connections are arranged so that one handwheel or chain wheel closes one vane while opening the other. Automatic operation can be readily applied. Available in 4 to 60" American Standard Pipe Flange sizes, cast iron or special alloys.

Built to meet specific conditions as to size, control arrangement, operating temperature and materials of construction. In a recent application, a fabricated steel tee was connected with a run in the vertical 16" exhaust line from a diesel engine to the stack, with one butterfly valve on upper side of run and the other in the offset opening which led to a waste-heat boiler.

One handwheel operated both valves, so that when vane in one was open, vane in the other was closed. Thus, all waste-heat gases could go up stack or through boiler, or could be partly diverted in any proportion to each.

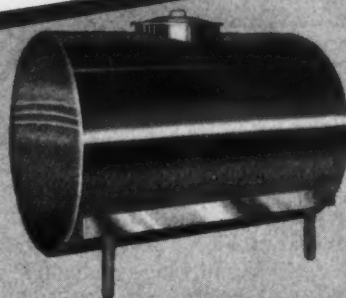
In another installation, products flow into side outlet of tee and are diverted into either of two lines at right angles to flow through valves.

SOURCE — Wafer Butterfly Three-Way Valve is produced by W. S. Rockwell Company, Dept. CP, Fairfield, Conn. . . or for more information check CP 5831 on handy form, pages 2 and 3.

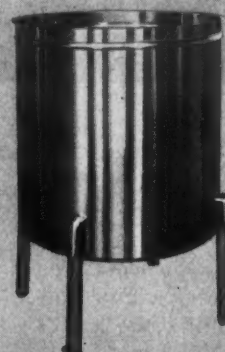
JUNE, 1948

All the Requirements

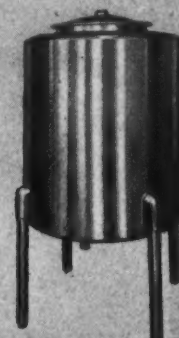
FOR LIQUID PROCESSING



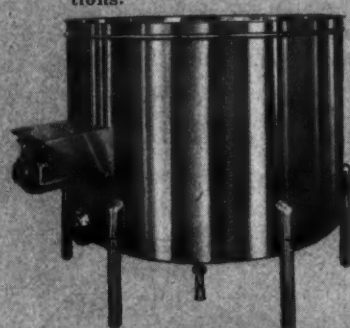
TYPE "H." A mixing or storage tank recommended for low headroom installations.



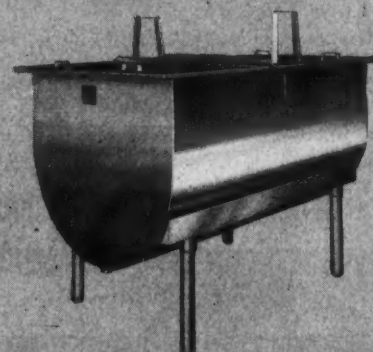
TYPE "J." A modern design open-top San-I-Tank.



TYPE "K." Closed top tank for mixing or storage.



TYPE "L." Large capacity and low sides for shoulder height operation.



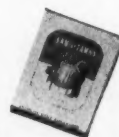
TYPE HALF ROUND. An ideal storage vat for processing liquids or foods.



STOCK POTS. Sturdy, stainless steel utility pots.

are in STAINLESS STEEL SAN-I-TANKS

- A COMPLETE LINE
- STREAMLINED DESIGN
- PRACTICAL CONSTRUCTION
- EASY OPERATING
- SELF DRAINING
- LOW COST



Send today for your free copy of Bulletin SS-48. Contains full information, specifications and data on Single Shell SAN-I-TANKS.

Thousands of industries throughout the world are using SAN-I-TANKS to meet their liquid processing requirements. Whether the operation is mixing, blending or storage . . . in tank capacities from five to 5,000 gallons . . . there's a SAN-I-TANK to handle the job.

Experience gained through many years in the tank fabricating industry has resulted in a complete line of modern SAN-I-TANKS. Durable, stainless steel construction assures long-term service and top operating efficiency that meets every sanitary requirements.

SAN-I-TANKS also feature a full line of accessories including motor-driven agitators, sanitary flush valves, faucets and covers.

For liquid processing equipment that meets your exact requirements check with SAN-I-TANK first!

STAINLESS STEEL SAN-I-TANKS

SERVING THESE INDUSTRIES: BEVERAGE • MILK • FOOD • DRUGS • CHEMICALS • COSMETICS

METAL GLASS PRODUCTS COMPANY

GENERAL OFFICES

BELDING 2, MICHIGAN

When inquiring check CP 5832 on handy form, pgs. 2-3

ASK
STOKES

Who has the Successor to PENICILLIN?

PENICILLIN was first dried under commercial conditions . . . at the Stokes plant, in Stokes freeze-drying equipment, by Stokes engineers. Today Stokes freeze-drying equipment in many laboratories of America and other countries is answering the world's demand for penicillin.

Other Stokes equipment for higher vacuum and chemical processing is answering many industrial needs, and will answer still more.

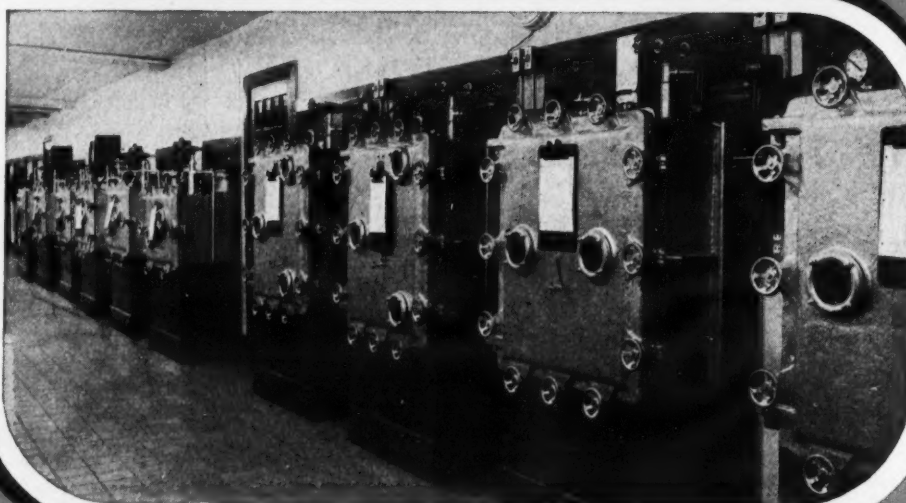
What have you that needs development from the laboratory to commercial production? . . . that needs testing, prov-

ing, production planning, costing before it is ready for the world to use?

Stokes has the semi-plant-scale laboratory, the engineers, and complete manufacturing facilities to supply the answer to your problems. Forty years of experience in the full range of higher vacuum processing is at your service.

Stokes also makes Chemical and Food Processing equipment, High Vacuum Pumps and Gages, Vacuum and Atmospheric Dryers, Pharmaceutical equipment, Tablet Machines, Water Still.

F. J. Stokes Machine Co.,
5974 Tabor Road, Phila. 20, Pa.



Stokes freeze-drying chambers for penicillin at plant of Sharpe & Dohme, Inc., Glenolden, Pa.

STOKES

KNOWS
HOW

When inquiring check CP 5833 on handy form, pgs. 2-3

Processing Equipment

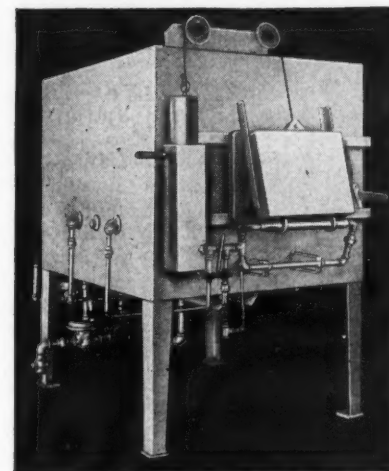
Lithium Vapor Stops Oxidation, Retains Metal Surface Analysis

Universal batch furnaces reduce production costs of carburizing, hardening, etc.

USES — Gas-fired and electric batch furnaces for improved results in neutral annealing, normalizing, hardening, spheroidizing, carburizing, carbon restoration and brazing. For heating in a temperature range of 1200 to 2100°F., handling work of widely varying size, shape and number of pieces.

FEATURES — Designed to overcome variables which cause changes in quality of furnace atmosphere and, consequently, in the nature of metal work-surfaces. Benefits resulting from this design are said to include:

Positive, unfailing control of heating and atmosphere, without critical manual control or supervision. No ox-



Lithium Atmosphere Universal Batch Furnace

dation or change in surface analysis of the metal. Reduced production costs due to minimizing or elimination of after-cleaning and even-machining. Easy batch loading and regulation of heat input and atmosphere. Fast, uniform heating under predetermined, automatically-controlled conditions.

DESCRIPTION — Atmosphere-variations in controlled-atmosphere furnaces, according to manufacturer, may be caused by changes in analysis of gas supplied to the atmosphere generator, also by possible change in furnace temperature and pressure, air infiltration into the work chamber, water condensation, etc.

In the furnace described, complete atmosphere control is said to be effected "right at the work" by introduction of lithium vapor into the heating chamber, along with the usual carrier gas. Protection of this vapor is said to extend to the instant of quenching, or during air-cooling, thus preventing oxidation or change in surface analysis. Cost of the lithium is at a rate of about 2c per hr., manufacturer reports.

Furnace shell, of all-welded reinforced steel plate, is lined with ample thickness of high quality insulating refractory brick, backed by insulating brick. Work chamber is alloy steel muffle, supported on refractory brick and equipped with combination alloy steel heat gate and

CHEMICAL PROCESSING Preview

Processing Equipment

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hardening,
and braz-
1200 to
shape and

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s. Benefits

atmosphere,
No oxi-

atmosphere baffle at front end of heating zone. This closes-off work during heating. Gate is swung by manually-operated lever. The insulated steel charging door is counterweighted, operated by hand-lever.

Burners of gas-fired units fire from both sides into heating chamber beneath the muffle. In electric furnaces, sinuous loop alloy ribbon elements are supported by alloy hangers set in brickwork.

Self-discharging flexible alloy belt or automatic dump trays facilitate direct quenching without exposure of the work. When a rod is pulled, work-pieces drop through a sealed chute into an easily-removed basket in the quench-tank. Quenching medium is circulated by a propeller-agitator. Manually-operated bridge arms, built into chute, permit removal of work without quenching, if desired, and ease loading.

Lithium vaporizer is built into rear of furnace, and is heated separately. Lithium cartridge is loaded into vaporizer chamber through a tube, to which is connected the pipe from the carrier gas atmosphere generator. Vaporized lithium and carrier gas flow through slotted tube to fill the work muffle. Furnaces are built in 13 standard muffle sizes with work areas from 12 x 24" to 24 x 48". Larger special sizes are available.

SOURCE — Manufactured by The Lithium Company, Dept. CP, 111 Sylvan Ave., Newark 4, N. J. . . or for more information check CP 5834 on handy form, pages 2 and 3.

21-lb. Direct-drive Unit Cleans Condenser, Exchanger Tubes

*Air or steam-driven machine cleans all scale
conditions from tubes $\frac{3}{8}$ to $1\frac{1}{2}$ " ID*



21-lb. tube cleaner

USES — Air or steam-driven direct-drive cleaner, designed especially to clean all scale conditions from condenser and heat exchanger tubes from $\frac{3}{8}$ to $1\frac{1}{2}$ " ID. For use with or without a supporting rig.

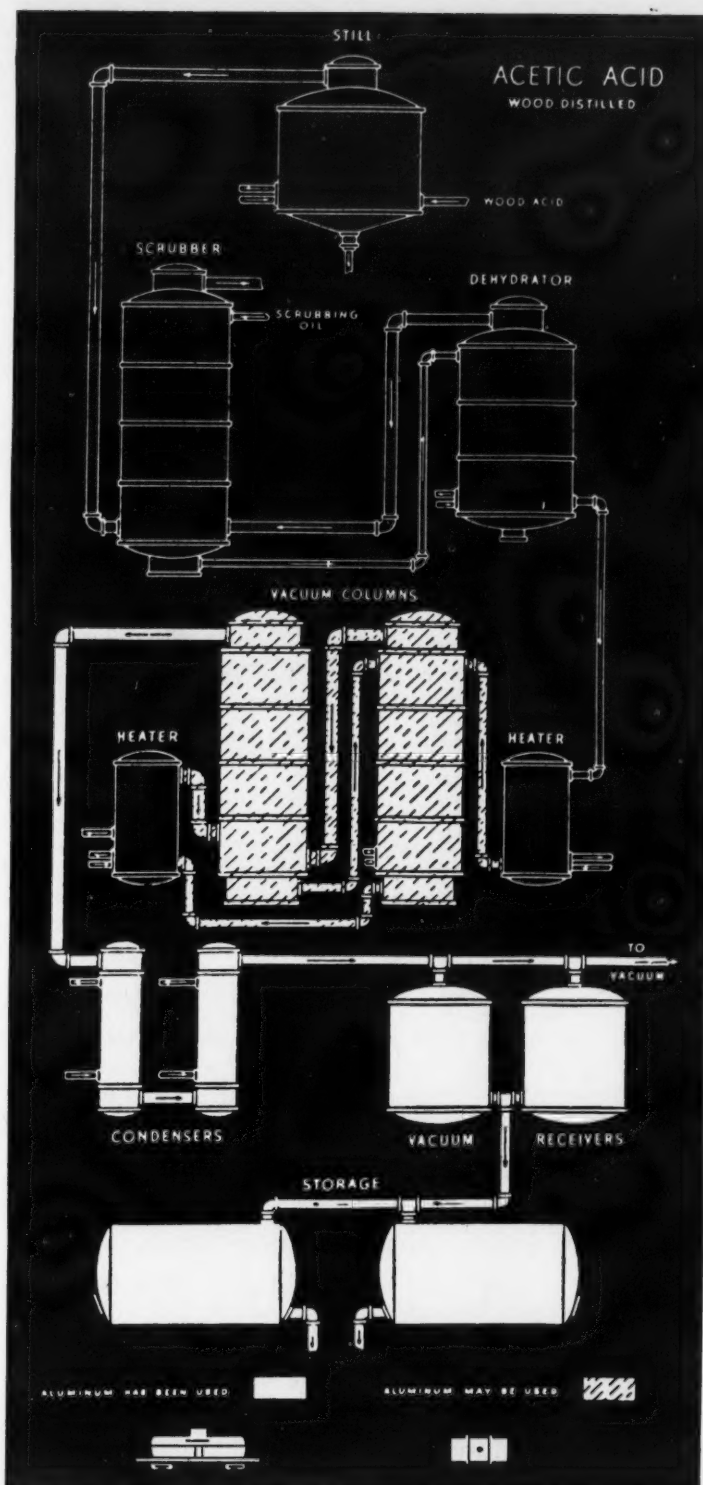
FEATURES—Light-weight. Slip-fit construction permits quick disassembly of motor on job, without special tools.

DESCRIPTION — Weight, 21 lbs. Sturdy, light-weight aluminum alloy outer case. Heat-treated alloy steel moving parts, assuring uniform grain and hardness. A convenient handle-valve gives operator constant, positive control. Air or steam-driven direct-drive high-speed motor.

Flushing agent is introduced through motor and drive-shaft to cutting edges to assure cool drill and to flush out the removed deposit. Packing glands prevent leakage of flushing agents. Various designs of cutters and drills are available. Bulletins contain additional data concerning Model CC-450.

SOURCE — Made by The Airetool Manufacturing Company, Dept. CP, 338 S. Center St., Springfield, O. . . or for more information check CP 5835 on handy form, pages 2 and 3.

JUNE, 1948



MAKING ACETIC ACID?

Here's where to use
ALCOA ALUMINUM
for Process Equipment

13 years of trouble-free service . . . low maintenance cost . . . no discoloration of product. These are reasons why Alcoa Aluminum is widely used for plant equipment handling glacial acetic acid.

Sheet and plates of Alcoa Aluminum for tanks and shells, Alcoa Aluminum Tubing for heat exchangers, aluminum pipe and fittings protect the color and maintain the quality of the product. Tank cars and drums of Alcoa Aluminum protect its quality in transit.

Most job shops, or your own equipment shop, will have no problems forming, welding, and erecting chemical equipment of Alcoa Aluminum. For engineering advice and technical data, write to ALUMINUM COMPANY OF AMERICA, 1731 Gulf Building, Pittsburgh 19, Pa. Sales offices in 54 leading cities.

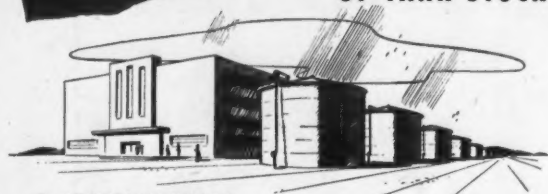
ALCOA FIRST IN ALUMINUM



When inquiring check CP 5836 on handy form, pgs. 2-3

Complete Control

OF TANK STOCKS



★ INSTANTANEOUS
INVENTORY READINGS!

Now, a complete gaging system which eliminates many gaging operations. Eye-level readings at each tank, plus electric dials on master control panel always before your operator's eyes — ready to give readings instantly. Easy to install. High or low pressure. Accurate. Time Saving. Send for Bulletin No. 148.

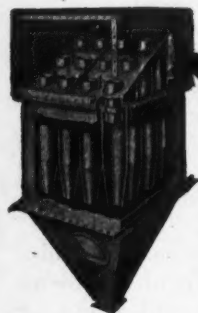


SMITH METER COMPANY

SUBSIDIARY OF A.O. SMITH CORPORATION
FACTORY: 5743 SMITHWAY, LOS ANGELES 22, CALIF.
Sales Offices: NEW YORK, CHICAGO, HOUSTON
LOS ANGELES, Canadian Representatives: Toronto,
Vancouver, International Division: Milwaukee 1,
Wisconsin. Local Agents in Principal Cities.

When inquiring check CP 5837 on handy form, pgs. 2-3

There's a difference between **COMPACTNESS**
and **SPACE ADAPTABILITY...**



The
MULTICLONE
has BOTH!

IN SELECTING dust recovery equipment, every foot of space saved is that much more valuable area available for other equipment. And the compactness of the equipment you select is just one of several ways to save plant space. Equally important is the adaptability of the equipment to space limitations within an existing plant.

And this is how the MULTICLONE makes two-way savings in space: The MULTICLONE itself is unusually compact, requiring as little as 1/6 the floor space, 1/4 the cubic space of other units of comparable performance. In addition, the shape of the MULTICLONE is readily adaptable to various space requirements and can be varied to fit odd-shaped or restricted areas that would otherwise be waste space.

For this reason you can fit the MULTICLONE into unbelievably small spaces, thus saving valuable plant area. But space-saving is just one of many MULTICLONE advantages. It is unusually efficient...has no high-speed moving parts to maintain, no screens to clean or replace...is simple to install, easy to service...and has many other important advantages.

Get the full story by
sending for this
MULTICLONE
booklet!



When inquiring check CP 5838 on handy form, pgs. 2-3

Processing Equipment

Hydraulic Lab Press has 20-ton
Capacity; Separates Molds, Dies

Optional "extras" include units for liquid
extraction, tension testing, etc.

USES — Hydraulic laboratory press for separating molds, dies, etc. Optional equipment includes attachments for slug briquetting, liquid extracting, tension testing, compression testing, plastics injection molding of test bars, hot plates for laminating and molding.

FEATURES — Especially designed for accurate pressure-holding service over long periods.

DESCRIPTION — Double-acting ram provides positive pull-back pressure for mold separation, etc. A 20-ton capacity unit with 8 x 9" pressing surfaces. Max. opening between pressing surfaces, 14". Max. travel, 8". Max. pullback pressure, 2 1/2 tons.

Manual operating valve controls direction of travel. Gravity traverses press platen rapidly to work, the hand-pump being required only for building up desired pressure and returning press platen to original open position. Press is equipped with 2-stage hand-pump for rapid advance after contacting work, and for rapid return. Press bed is stationary; top platen travels to and from work.

SOURCE — Press and fixtures designed and built by The Hydraulic Press Mfg. Company, Dept. CP, Mt. Gilead, O. . . . or for more information check CP 5839 on handy form, pages 2 and 3.

Fuses Molten Bead-treads to
Slippery Steel Stairs, Roofs

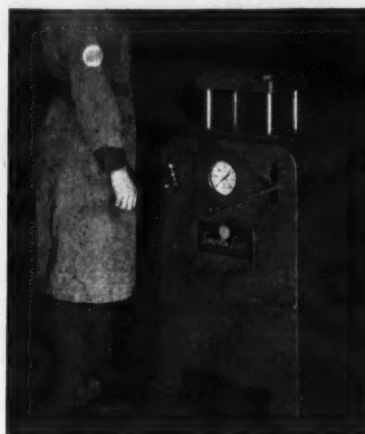
Use switch-operated vibrating electrode holder
with AC, DC welders; arcs automatically

USES — Tool for depositing and fusing molten bead-patterns on smooth, slippery steel or iron surfaces such as stairways, roofs and floors of industrial plants. For preventing accidents.

FEATURES — Beads can be applied during regular working hours to dry, wet or oily metal without any special surface preparation. Five linear ft. of bead can be applied in 1 min., manufacturer reports, and 10 linear ft. is sufficient for slip-proofing 1 sq. ft. of floor.

Operation requires no special skill or training. Deposited metal is extremely hard, retaining slip-proof qualities even when wet or oily. Provides a simple, quick and economical method of avoiding costly damage or accidents.

DESCRIPTION — Switch-operated tool consists of vibra-



Hydraulic laboratory press



The
LOGAN ARIDIFIER
self-cleaning
SEPARATOR for
COMPRESSED AIR

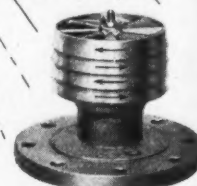
GET THIS FREE BULLETIN 147

... explains how centrifugal
force continuously flush-cleans
the Aridifier while at the same

time purging 92% of all moisture, oil and dirt in the compressed air line. You'll have trouble-free, automatic protection for tools, orifices and sprayed jobs... with no down time... and no line back pressure.



NO SCREENS
FILTERS
OR BAFFLES
TO CLEAN
OR REPAIR!



LOGAN ENGINEERING CO.
4900 Lawrence Ave., Chicago 30, Ill.

Logan ARIDIFIER
Dries and Cleans Compressed Air



When inquiring check CP 5840 on handy form, pgs. 2-3

"Anets" **LABORATORY CABINETS**
Selected BY THOSE WHO KNOW!

★ FANSTEEL METAL CORP. ★ DURITE PLASTICS ★ ANSCO CORP. ★ R.C.A. CORP. ★ CONTINENTAL CAN CORP. ★ ARMY SERVICE FORCES ★ BEATRICE CREAMERY CORP. ★ STEIN HALL MFG. CO. ★ WESTERN ELECTRIC CO. ★ CENTRAL SOYA PRODUCTS ★ SHERWIN WILLIAMS CORP. ★ NATIONAL CARBON CO. ★ GRATON & KNIGHT CO. ★ AMERICAN CYANAMID ★ ABERDEEN PROVING GROUNDS ★ SWIFT & COMPANY ★ JOHNSON & JOHNSON ★ KRAFT FOODS CO. ★ FORD MOTOR CO. ★ GENERAL MOTORS CORP. ★ GENERAL ELECTRIC CO. ★ PHILCO CORP. ★ ZENITH RADIO CO. ★ DURKEE FAMOUS FOODS ★ ALLIED SUGAR LABORATORY INC. ★ WISCONSIN ALUMNI RESEARCH FOUNDATION ★ BUNTE CANDY CO. ★ WOODALL, INC. ★ QUEEN ANN CANDY CO.

● The choice of leaders in every field for precision testing, processing, etc., wherever exactly controlled temperature from room up to 140° and humidity from room up to 93% relative humidity is a must. All electric operated and fully automatic. Super-sensitive controllers maintain any selected condition accurately. Takes the pressure off your laboratory and sets up accurate, tested quality control.

STAINLESS STEEL CONSTRUCTION

New improved LSC-16 has inner cabinet, ducts, air conditioner, heating unit, steam generator, water feeder, shelf hangers, door liners, etc. of Stainless Steel. Heavy molded rubber gasket around doors provides a perfect seal. Controlled conditioned air circulated to every shelf from top to bottom of the cabinet. Check your requirements and write for Bulletin No. 170 TODAY.

- ★ Testing Electrical and Electronic units and component assemblies.
- ★ Checking moisture absorption, package testing, weathering and break-down.
- ★ Processing plastics, fabrics, metals and wood.
- ★ Incubation, germination, bacterial culture development, fermentation and proofing.

ANETSBERGER BROS., INC.

168 N. ANETS DR., NORTHBROOK, ILL.

When inquiring check CP 5841 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Processing Equipment

ting electrode holder, and is used with either AC or DC welding machines. It deposits hard, rough bead-lines about $\frac{1}{8}$ " wide and $\frac{1}{16}$ " high. On large areas, bead-lines usually are spaced several inches apart and arranged geometrically in diamond-pattern or similar designs. On small areas such as nosing of a stair-tread, several closely-spaced parallel bead-lines are usually deposited.

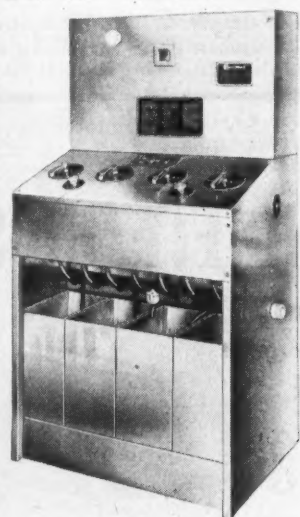
In operation, end of electrode is placed in contact with surface to be roughened. It is drawn along at approximately 5 fpm. "Holding" an arc is unnecessary, since vibrator causes intermittent arcing which melts end of hard steel electrode and fuses molten droplets to base.

SOURCE — Manufactured by Metallizing Engineering Company, Inc., Safety Products Div., Dept. CP, Long Island City 1, N. Y. . . or for more information check CP 5842 on handy form, pages 2 and 3.

★

"Upflo" Demineralizer Produces Purer Water at Lower Cost

Water flows up through resin beds, hence no "backwash" is necessary; resins are better



Demineralizer, showing control panel

USES — Purification of water by de-ionization.

FEATURES — Improved synthetic resins and flow of water up through resin beds, resulting in more efficient resin usage, are said to improve effluent purity and permit more compact design. Regeneration time and valve operations are reduced to minimum by "Upflo" principle because need for "backwashing" is eliminated. High efficiency of unit

and resins plus cutting of regenerating time nearly in half account for exceptionally low operating costs, maker states.

Unit is "packaged" and easily installed.

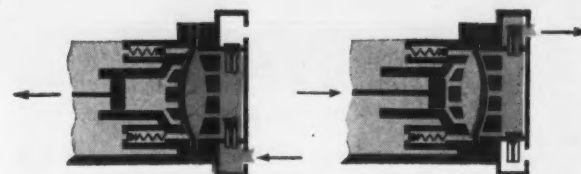
DESCRIPTION — Unit comes completely assembled with everything in place. Valves, inter-connecting piping and built-in regenerating tanks are included. It is only necessary to connect to water supply and waste to start operation. Ordinary electrical outlet is needed for indicator lamp which tells when unit needs regeneration. No heat or electricity is used in ion-exchange process itself.

SOURCE — "Upflo" demineralizers are manufactured by The Barnstead Still & Sterilizer Co., Inc., Dept. CP, 148 Lanesville Terrace, Forest Hills, Boston 31, Mass. . . or for more information check CP 5843 on handy form, pages 2 and 3.

JUNE, 1948

THE INSIDE STORY

OF CHEMICAL ISOLATION IN PROPORTIONED PUMPING



● In the Pulsafeeder, a reciprocating piston pump displaces accurately measured volumes. But it pumps only oil or other neutral medium, which in turn actuates a diaphragm. This hydraulically-balanced diaphragm isolates fluid being handled, prevents contamination.



Lapp
PULSAFEEDER
PISTON-DIAPHRAGM PROPORTIONING PUMP

No other pump offers the operating advantages inherent in Lapp Pulsafeeder design. As a reciprocating piston pump, the Pulsafeeder offers the accuracy of measured-feed positive displacement and the ability to work at high pressures. As a diaphragm pump, it requires no stuffing box, offers complete isolation of chemical being handled, and consequent elimination of contamination. The diaphragm is hydraulically-balanced, so not subject to strain. Perfect lubrication for the pump is assured, with all moving parts submerged in an oil bath. Rate of flow is micro-adjustable while pump is in operation. Single-head and duplex models in four sizes for flows from less than 100 ml. per hour to 660 gallons per hour. Write for new bulletin No. 262 with complete description and specifications. Lapp Insulator Co., Inc., Process Equipment Division, 358 Maple St., Le Roy, N. Y.

Lapp

Process Equipment

CHEMICAL PORCELAIN VALVES
PIPE • RASCHIG RINGS
PULSAFEEDER PROPORTIONING PUMPS

When inquiring check CP 5844 on handy form, pgs. 2-3



'VAREC' approved INTERNAL Safety VALVE

Here's a safety device that automatically closes the flow into or from your tank in case of external fire exposure. It consists of a spring-loaded valve that is held in normal open position by a fusible link. On contact with fire, the link melts and instantly closes the valve to insure a positive shutoff.

This same valve can be adapted to other operations. With slight modifications, it can be connected to an air cylinder and be operated from a remote position with compressed air. It can also be manually operated.

Standard construction is cast steel with bronze trim or all bronze. Available in other materials on special order. Complete range of sizes from 2" to 18". "VAREC" Engineers will be pleased to assist you in the specification of these safety devices and other accessory tank equipment.

Free Engineering Handbook — write today on your letterhead for a copy of the VAREC P-7 Handbook and Catalog.

"Varec"

CP-2

THE VAPOR RECOVERY SYSTEMS COMPANY
COMPTON, CALIFORNIA, USA

NEW YORK 30 CHURCH STREET CLEVELAND 1501 EUCLEID AVE. CHICAGO 137 50, MICHIGAN AVE. TULSA 70 MAYO BUILDING HOUSTON 3214 W. & M. BLVD.
CABLE: VAREC COMPTON (All Codes)

When inquiring check CP 5845 on handy form, pgs. 2-3

Page 104

Processing Equipment

29-lb. Vacuum Cleaner Has 47" Waterlift, 1-1/4" Hose

*Manufacturer of industrial-type units builds
portable unit to heavy-duty standards*

USES — General-purpose vacuum cleaner for use wherever a small but powerful unit is required.

FEATURES — Can be carried or pulled. Produced by a manufacturer of industrial-type cleaners, it incorporates many features found in larger, heavy-duty machines, yet is far more powerful than domestic-type cleaners. Employs sound-deadening materials used successfully in manufacturer's larger units. Compact. Easily handled.

DESCRIPTION — Weight, 29 lbs. Waterlift, 47". 1-1/4" hose. 1/2 hp motor of accepted standard design develops strong suction. No outside filter bag.

Ample-capacity tank is finished in baked-on enamel and mounted on polished cast aluminum base equipped with 4 large, easy-rolling casters. Motor is mounted on self-lubricating ball bearings, and is completely enclosed within strong, burnished aluminum top which also contains an efficient air filter.

SOURCE — Model 101 Tornado is produced by Breuer Electric Mfg. Company, Dept. CP, 5100 Ravenswood Ave., Chicago 40, Ill. . . or for more information check CP 5846 on handy form, pages 2 and 3.

Trailer Gets Fire-fighting Foam to Location Quickly

*Apparatus puts out large gasoline, oil fires
in 2-3 min.; pulled by jeep, pickup truck*



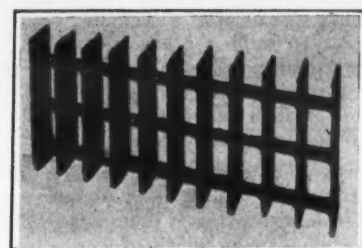
Fire-fighting unit in action. White around edge of fire is foam

USES — Fights fire in processing plants, petroleum plants, etc.; particularly useful where plants are expanded over a large area.

FEATURES — Efficient fire-fighting equipment can reach fire quickly. In recent test, unit extinguished gasoline flames in a 450 sq. ft. pit in 2-1/2 min. Repeated tests proved that intense oil fire could be put out and kept out in 2-3 min.

DESCRIPTION — Trailer is pulled by jeep or pickup

FOR TWELVE YEARS under extreme conditions



The section illustrated was cut from a panel of Hendrick Mitco that for twelve years was in an open yard between buildings in an industrial plant. It not only was exposed to rain, snow and atmospheric corrosion, but was in a drainage area and actually under water much of the time.

The joints show the least corrosion and have no crevices or cracks, although the side surfaces of the bars have been roughened and practically eaten away.

Write for detailed information on Hendrick Mitco Grating, Open Steel Flooring, Shur-Site Treads, and Armorgrids.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

HENDRICK
Manufacturing Company
32 DUNDAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

When inquiring check CP 5847 on handy form, pgs. 2-3

REDUCING FITTINGS

are a "Natural"
with
**LENAPE
PRESS
FORMING**



The condensor inlet shown here is one of a large number of similar "standard specialties" produced by Lenape. The fitting shown here reduces from 16" to 12", with 3/4" to 3/8" diminishing wall thickness.

Lenape, seamless welding necks, nozzles, manways, swing-type covers, and other accessories for vessels of all kinds, are available in a complete range of standard and special sizes. Write today for Bulletin 4-61. Your blueprints and specifications will be given our immediate attention.



LENAPE HYDRAULIC PRESSING & FORGING CO.
DEPT. 100
WEST CHESTER, PA.

When inquiring check CP 5848 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

truck (see illustration). Carries 2-compartment tank holding 250 gal. of water and 25 gal. of special foam-making material (Aer-o-foam). Mechanical mixing of the two produces 2,500 gal. of heavy, thick, snowy-looking foam. This is same foam used widely during war when Navy called it "bean soup" because soy beans form part of its base, manufacturer reports.

Two of maker's all-purpose nozzles, for use with water or foam, are included. Also included are: 50 gal. of Aer-o-foam liquid, including the 25 gal. in 2-compartment tank earlier mentioned; one CO₂ extinguisher and mounting; 2 hose reels — maxim automatic type with adjustable stuffing boxes — having capacity of 100 ft., 1" booster hose.

Furnished pump produces 100-lb. pressure. FZZ pump to be piped to water tank, discharge to be piped directly to hose reels; individual valve on each reel. Foam proportioner mounted on FZZ pump which has capacity of 60 gal. per 100 lb., 100 gal. per 78 lb. or 150 gal. per 46 lb.

Dual wheels are of pressed steel. Two hydraulic shock absorbers are furnished. Tires are 6.50 x 16, 6 ply, four supplied. Front landing gear retractable. Both electric and hand brakes. Trailer frame of steel, welded construction. Axle capacity is 5,000 lb.

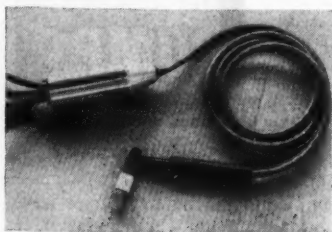
Connection cable and safety switch are provided for hooking onto jeep or pickup truck. Break-away and safety chains provided.

SOURCE — Fire-fighting trailer is manufactured by National Foam System, Inc., Dept. CP, 1408 Packard Bldg., Philadelphia 2, Pa. . . or for more information check CP 5849 on handy form, pages 2 and 3.

★

Manual Heliweld Holder is Efficiently Cooled, Light-weight

Capacity of 300 amp. AC or DC; fully-insulated for arc-starting, stabilizing



Manual Heliweld holder

most to point at which electrode is gripped. Holder cable is long enough to permit freedom of movement and rugged to withstand hard usage.

DESCRIPTION — Water-cooled. All-plastic exterior insulated. Gas cap of non-conducting material; light, flexible cable encased in durable, translucent plastic cover. Current capacity of 300 amp. AC or DC. Fully insulated for high-frequency current often required for arc-starting and stabilization. Approximately 10" long, weighs 28 oz., handles tungsten or carbon electrodes up to 3/16" dia.

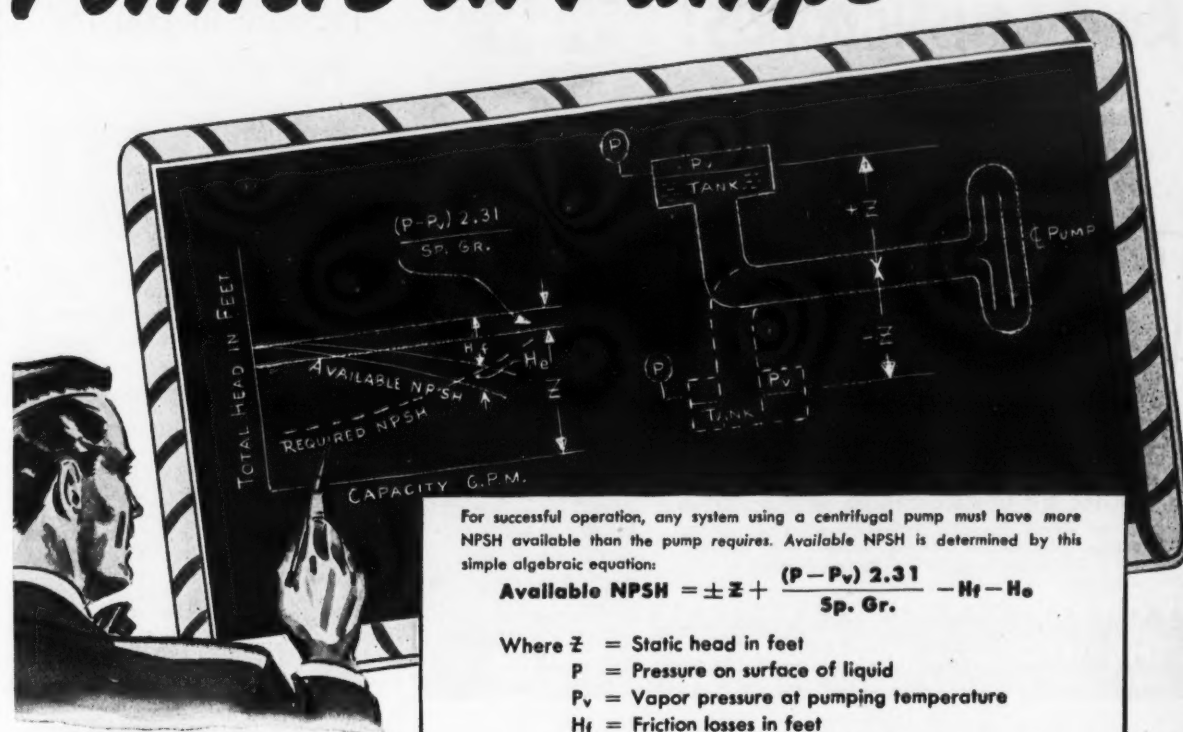
SOURCE — Developed by the Air Reduction Sales Co., Dept. 1315, Dept. CP, 60 East 42nd St., New York 17, N. Y. . . or for more information check CP 5850 on handy form, pages 2 and 3.

USES — Heliweld manual holder for continuous production work with inert-gas-shielded arc welding method.

FEATURES — Maximum protection and efficient operation are reported. Cooling extends al-

most to point at which electrode is gripped. Holder cable is long enough to permit freedom of movement and rugged to withstand hard usage.

Pointers on Pumps



WHAT IS NPSH?

NPSH (net positive suction head) is an *absolute* term covering hydraulic conditions at the suction side of a centrifugal pump. It can be used instead of the *relative* terms "suction lift" and "suction head" to assure the proper application of centrifugal pumps. These relative terms are useful in calculating the total head against which the pump must operate; but they should not be used when considering the suction condition as it affects proper centrifugal pump selection.

Actually, every centrifugal pump has its own NPSH characteristic, usually referred to as "required NPSH". The pump impeller opening must be filled at the required rate of flow (GPM) so the impeller can pump at this rate. The

velocity needed to put this quantity into the impeller opening must come from an external head. The value of this external head is the "required NPSH".

Obviously, if the liquid pumped is not to vaporize in the entrance to the impeller, the required NPSH must be measured over and above the vapor pressure of the liquid at the pumping temperature. The required NPSH will vary roughly as the square of the pump capacity through the useful range of application of that pump.

For successful operation, any system using a centrifugal pump must have more NPSH available than the pump requires. Available NPSH is determined by this simple algebraic equation:

$$\text{Available NPSH} = \pm Z + \frac{(P - P_v) 2.31}{\text{Sp. Gr.}} - H_f - H_0$$

Where Z = Static head in feet

P = Pressure on surface of liquid

P_v = Vapor pressure at pumping temperature

H_f = Friction losses in feet

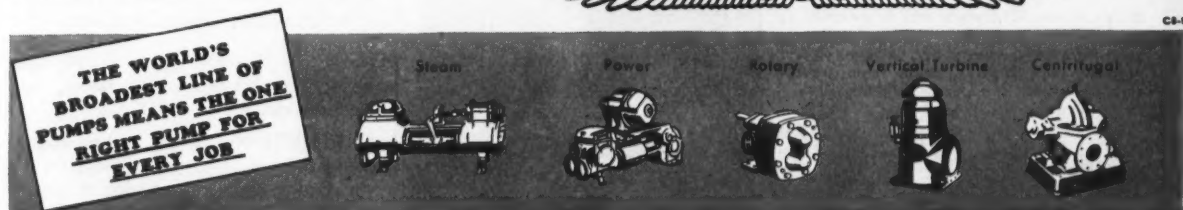
H_0 = Entrance loss from tank to pipe

NOTE: For boiling liquids, P usually equals P_v ; this item is therefore omitted from the problem.

For YOUR Pumping Needs

Worthington has the most complete line of centrifugal pumps — all pressures, all capacities — and engineers ready to give you expert advice on any pumping problem. For further details proving *there's more worth in Worthington*, contact our nearest District Office, or write to **Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.**

WORTHINGTON



THE WORLD'S
BROADEST LINE OF
PUMPS MEANS THE ONE
RIGHT PUMP FOR
EVERY JOB

When inquiring check CP 5851 on handy form, pgs. 2-3

Now there are TWO Acid-Causticbonds!

to give you
Inside and Outside protection against
CHEMICALS AND CORROSION



MAINTENANCE COATING

This excellent Vinyl-base Coating resists chemical fumes and occasional spillage of acids, alkalis and salts. Use on outside of all equipment, structural steel, piping, etc. and on floors. Can be applied by brush or spray to wood, concrete or metal surfaces.

TANK LINING

Where coating must stand immersion, this heavy-duty Vinyl-base coating meets the most severe chemical conditions. Also most severe chemical conditions. Also where concentrated fumes or continual spillage of acids or alkalis are encountered. Even withstands 10% Acetic Acid and Carbon Tetrachloride. Equally effective on concrete or steel tanks. For spray or brush.

SEND FOR NEW CHEMICAL RESISTING COATING BULLETIN

For full details of these and other chemical resistant coatings, send for this technical bulletin which gives full information about specific applications.

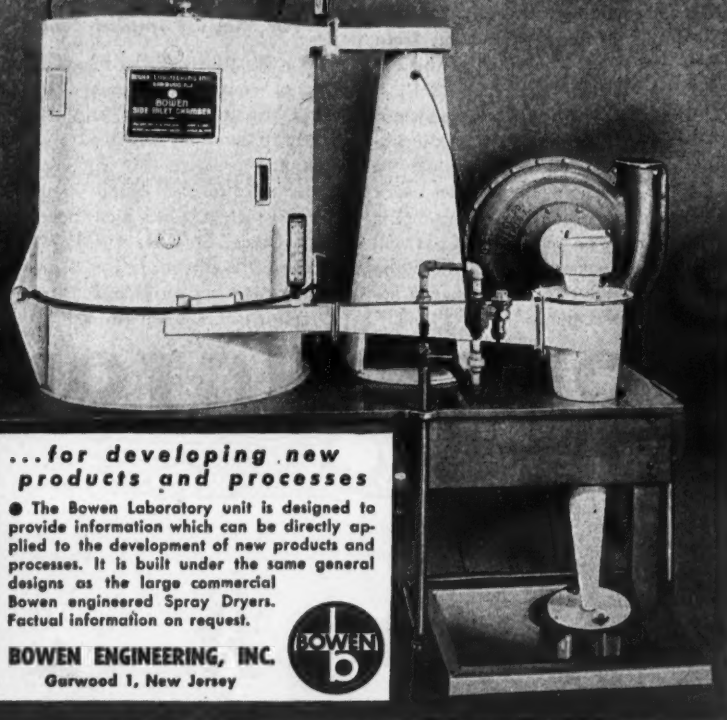
THE WILBUR & WILLIAMS CO.

Dept. "C-46", Greenleaf & Leon Sts., Boston 15, Mass.

When inquiring check CP 5852 on handy form, pgs. 2-3



BOWEN LABORATORY SPRAY DRYER



...for developing new products and processes

● The Bowen Laboratory unit is designed to provide information which can be directly applied to the development of new products and processes. It is built under the same general designs as the large commercial Bowen engineered Spray Dryers. Factual information on request.

BOWEN ENGINEERING, INC.
Gurwood 1, New Jersey



When inquiring check CP 5853 on handy form, pgs. 2-3

Processing Equipment

"Y" Strainer Handles Pressure to 600 lbs.

*Design reduces pressure-drop
to minimum*

USES — High-pressure Y-type strainer for pressures up to 600 lbs.

Useful for close-quarter installations as well as normal use. Also available in models for intercepting small ferrous particles.

FEATURES — Designed to reduce pressure drop through strainer to minimum. Each unit is hydrostat-



High-pressure strainer

ically tested for service conditions under which it will be required to operate, manufacturer reports.

DESCRIPTION — Made with threaded, flanged or welded connections, in many standard sizes, or to specification. Perforated strainer sleeve fits snugly into body.

Includes bolted blow-off connection for blow-down cleaning. Available with magnetized strainer plug, if desired. Made in various metals such as cast bronze, brass, cast iron, cast steel.

SOURCE — Developed by J. A. Zu n Mfg. Company, Dept. CP, Dept. Z-1, Erie, Pa., . . . or for more information check CP 5854 on handy form, pages 2 and 3.

Flat-jet Wash Nozzle Has Spring Guard

*Protects unit from bumps or
damaged spray pattern*

USES — "Flatjet" spray nozzle and spring guard for washing floors, machinery, etc.

FEATURES — Guard makes nozzle damage-proof without interfering with spray. Prevents accidental bumping which, particularly in this type of nozzle, might otherwise alter characteristic of spray. Light-weight.

60,000
FT.
64°F

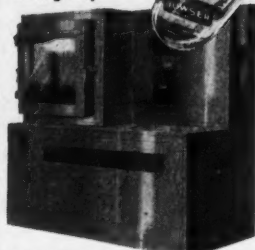
BOWSER UNITS FOR PRODUCTION OR LABORATORY TESTING

Vacuum to 1" Hg. Absolute.
Relative humidity to 95%.
Temperatures from -100°
F. to +180° F. Factors
are controllable within
fine tolerance
ranges. Also top
opening models
for sub-
zero process-
ing only.

BOWSER PROVIDES

- VACUUM
- HUMIDITY
- TEMPERATURE

For desiccation and
other processing
tests and controlled
bacteriological re-
search. Also units for
production process-
ing.



Write for data,
giving range of
factors desired.

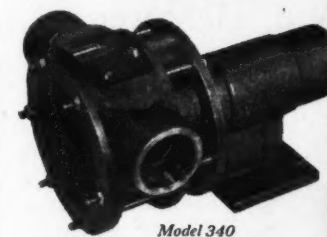
BOWSER REFRIGERATION DIV.
TERRYVILLE, CONN.



IN CANADA, S. F. BOWSER, LTD. • 64 FRASER AVE. • TORONTO, ONTARIO

When inquiring check CP 5855 on handy form, pgs. 2-3

NEW.. JABSCO



Model 340
1 1/2" Port Size

stainless
steel
PUMPS

Only a Jabsco Stainless
Steel Pump gives you—

A completely reversible
neoprene impeller—
vacuum in excess of
27" of mercury.

Pressures from 0 to
40 PSI.

Capacities up to 55
GPM of water 1750
RPM at 0 PSI.

Temperatures up to
160° F. maximum.
Instantly self-priming
at all speeds—at
all times.

Pumps available in
bronze & other metals.

**Pump Life Increased 2-3 Times with
Jabsco Reversible Rubber Impeller!**

Jabsco's new Stainless Steel Pump offers a better way to handle a wide variety of chemical and food pumping jobs. Jabsco's patented pumping action and flexible rubber neoprene impeller provides an unusually high vacuum for "lift" and instant self-priming. Handles most liquids—juices, syrups, oils, brine, vinegar, and preserves—viscous and abrasive—with equal efficiency and without clogging the pump. There's no metal to metal action—completely reversible—self-lubricating and may be mounted at any angle. Write for pertinent catalog and application information on this New Jabsco Stainless Steel Pump NOW!

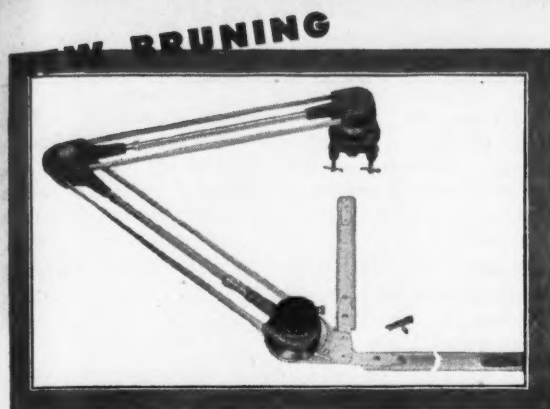
JABSCO PUMP CO.

2031 N. Lincoln St., Burbank, California

The pump with the Rubber Impeller

When inquiring check CP 5856 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



EQUIPOISE DRAFTERS

New smoothness in drafting—greater accuracy—unhampered speed are features of the new Bruning Equipoise Drafters—made in two models, Standard and Civil Engineer's. The Equipoise mechanism, a spring balancing device, assures accurate alignment of the machine at all times on an inclined drawing board. The Equipoise Drafter "floats" into any operating position without heavy brake drag. A revised protractor head assembly permits greater convenience in operation and maximum visibility—a new base line setting device for locking the protractor index point to any desired angle is simple in operation and positive in action. For complete information write Charles Bruning Company, Inc., 4706-24 Montrose Ave., Chicago 41, Ill.

BRUNING SINCE 1897

When inquiring check CP 5857 on handy form, pgs. 2-3



Clean, efficient, the "Precision" Electric Heat Senior Model Water Still, is a "hard water" model at no extra cost. Double walled evaporator is thermally insulated, and immersion heating coils insure maximum efficiency. Three separate coils may be controlled by individual switches to yield two, four or six gallons of distillate per hour without wasting current. Separate coils are easily replaceable. The "Precision" Senior Model Electric Water Still is not built larger than six gallons per hour. Double and triple stills heated by electricity are also available, to suit specific requirements. Write for detailed literature No. 88.6C.

ELECTRICALLY HEATED WATER STILL

See Your Laboratory Supply Dealer

Precision Scientific Company

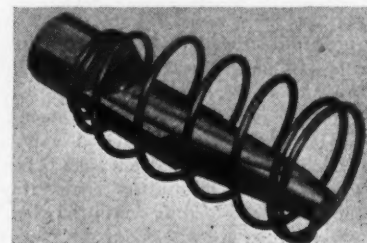
3717 WEST CORTLAND STREET CHICAGO 47, ILLINOIS, U.S.A.
Specializing in Research and Production Control Equipment

When inquiring check CP 5858 on handy form, pgs. 2-3

Processing Equipment

DESCRIPTION — Tri-curved deflector-face of nozzle provides sharp, hard hitting wash-spray.

Aluminum nozzle, with 2 types of connections: standard 3/4" garden hose



Damage-proof spray nozzle

thread and 1/2" pipe thread. Spring guard is phosphor bronze. Catalog 22 contains full details.

SOURCE — Made by Spraying Systems Company, Dept. CP, 4037 W. Lake St., Chicago 24, Ill. . . or for more information check CP 5859 on handy form, pages 2 and 3.

★

Warns of High, Low Liquid Levels

Sets off bells, lights or sirens on boilers, tanks to 250 psi



Liquid level alarm

USES — Liquid level alarm for setting off warning signals such as bells, sirens or lights when liquid levels in small boilers or various types of tanks reach predetermined high or low levels.

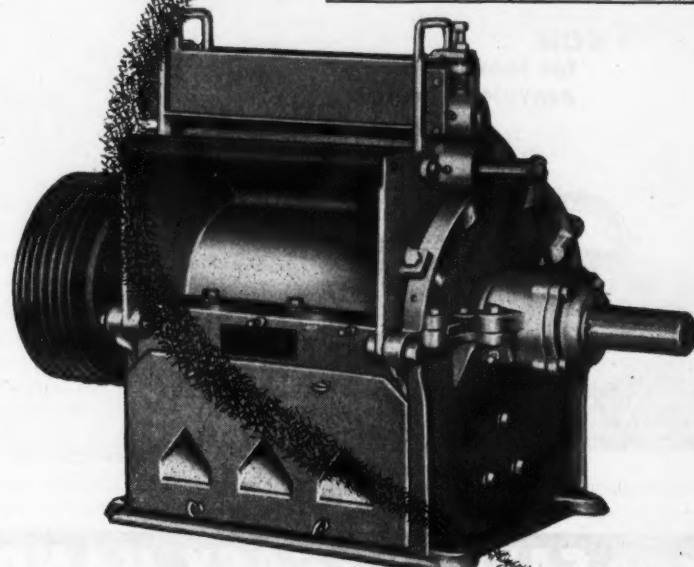
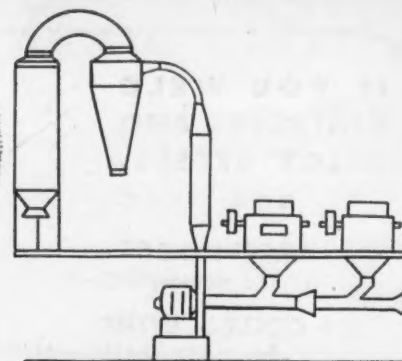
FEATURES — Dust, vapor and explosion-proof.

DESCRIPTION — Switch can be wired for normally open or normally closed circuit. Switch is operated through agency of a permanent magnet when monel float rises or falls in a separate float chamber.

SOURCE — "Levalarm" is made by The Reliance Gauge Column Company, Dept. CP, 5902 Carnegie Ave., Cleveland O., . . . or for more information check CP 5860 on handy form, pages 2 and 3.

FLOCK *

—from cellulose sheet pulp on a continuous basis



That's the job this Sprout-Waldron Flocking Cutter with built-in compression feed rolls is equipped to do.

Similar S-W Equipment is successfully producing FLOCK from nylon, felt, leather, hair and fur. Whether your Flocking needs demand a single unit or a complete system, you can depend upon Sprout-Waldron for an experienced recommendation.

This is just another example of ADAPTIONEERING AT WORK—providing improved operating techniques through better equipment—engineered for a specific job.

FLOCK *

Fiber stock cut to very short segments as required for plastic reinforcing filler, etc.

If you reduce, mix, separate, or handle material in bulk, consult Sprout, Waldron & Co., Muncy, Pa.

SPROUT WALDRON
Manufacturing Engineers

When inquiring check CP 5861 on handy form, pgs. 2-3

**IF YOU WELD
STAINLESS AND
ALLOY STEELS,
... and need**

- **ELECTRODES**
for arc-welding
- **COILED WIRE**
for automatic welding
- **ROD**
for inert gas or oxy-
acetylene welding

ARCOS can supply you with these materials
in the right analysis and size for your job

"PEACE OF
MIND"
PACKED
IN EVERY
BOX.

Send for the Latest Arcos Bulletin
"What electrode would you use to weld a
specified stainless or alloy steel?"



When inquiring check CP 5862 on handy form, pgs. 2-3

Processing Equipment

Underwriters O.K. Light Fixture for Acetylene, Hydrogen Use

*Reflectors intensify illumination of explosion-
proof units for chemical, paint manufacture*

USES — Explosion-proof lighting fixture for use during manufacturing operations in chemical, paint petroleum and related industries.

For use in inflammable and explosive atmospheres containing acetylene; also hydrogen or gases and vapors of equivalent hazard, such as manufactured gas. Likewise for use in atmospheres containing ethyl-ether vapors, ethylene, cyclopropane, gasoline, naphtha, benzene, butane, propane, alcohols, acetone, benzol, lacquer solvent vapors or natural gas.

FEATURES — Only lighting fixture ever approved by Underwriters' Laboratories for Class 1, Group A and B hazardous locations, manufacturer reports. Collectively, these include the atmospheres mentioned previously. Great intensity of illumination. Tested with respect to vibration and safe maximum external temperatures.

DESCRIPTION — Threaded for rigid conduit connection, the fixture is designed for operation with about 10 lbs. air pressure in the lamp compartment. This prevents entrance of surrounding hazardous atmospheres. If, for any reason, pressure drops to predetermined setting of about 3lb., the incandescent lamp automatically switches off.

Intensity of illumination results from high efficiency of

the metal reflector. Two sizes are available, one for a lamp of 75 or 100 watts, the other for 150 or 200-watt lamps. 200-watt size produces, on the working plane, illumination in excess of that obtained from 300-watt explosion-resistant fixtures. Lenses are tempered, heat-resistant glass, made in clear, frosted or concentrating types.

SOURCE — Developed by Safe Lighting, Inc., Dept. CP, 90-16 Astoria Blvd., Jackson Heights, Long Island, N. Y. . . . or for more information check CP 5864 on handy form, pages 2 and 3.

Boilers Produce Hot, Dry Steam at 100 psi or Higher; 2-50 hp; Gas, Oil-Fired

4-page bulletin describes manufacturer's vertical dry-steam boilers, gas or oil-fired, 2 to 50 hp, 100 psi or higher. Standard boiler and automatic boiler "package" unit, which is equipped for fully automatic operation and includes feed system, low water cutout on fire, steam pressure control, etc., are illustrated and described. Included are descriptions and illustrations of insulated boilers covered with polished aluminum casing, blow-off tanks for boilers, steel tubeless heating boiler.

Boilers are all ASME code construction. Manufacturer claims high economy, quick steam delivery and adaptability to either continuous or intermittent operation. Bul. 1056-A is issued by Alert Engineering Products Co., Dept. CP, 315 W. Woodbridge St., Detroit 26, Mich. When inquiring check CP 5865 on handy form, pages 2 and 3.

FOR SAFE AND EASY HANDLING OF ACIDS

WAHLERT SAFETY CARBOY DRAINER

**IMMEDIATE
DELIVERY**



Prevents Accidents and Splashing!

- Made of hard, acid-proof rubber.
- Soft rubber cuff permits drainer to be attached to carboys.
- All parts are replaceable.
- Prevents accidents caused by splashing and carelessness.
- Uninterrupted flow.
- Air vent eliminates pumping or syphoning.

MADE IN THREE SIZES

- No. 1—5 Gal. Size (1 3/4 to 2 3/8 in.)
- No. 2—Standard Size (2 3/4 to 3 in.)
10 to 13 Gallon
- No. 3—Large Size (3 1/4 to 3 1/2 in.)
Special Neck

These dimensions are outside diameter of carboy neck

CARBOY TILTER Used in conjunction with Carboy Drainer.

Wahlert Standard Tilter for 13 gal. Carboy
Wahlert Junior Tilter for 5 gal. Carboy

WAHLERT PRODUCTS CORP.
3 DE KALB AVE., BROOKLYN 1, N. Y.

When inquiring check CP 5863 on handy form, pgs. 2-3

MERCURY SWITCHES By MERCOID



Mercury switches bearing the registered trade mark name of "Mercoïd" are not subject to open arcing, oxidation, corrosion, pitting or sticking of the contacting surfaces.

There are numerous applications where these switches have a definite advantage over the open contact type switches.

Mercoïd switches are available to the trade in various designs, sizes and capacities.

Our engineers gladly offer their assistance in the adaptation of our switches to your switch problems.

Further information sent upon request.

THE MERCOID CORPORATION, 4201 BELMONT AVENUE, CHICAGO 41, ILL.

When inquiring check CP 5866 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

ST • HANDY



NON-PRIMING DRUM PUMP

is an economical, quick sensible way to empty drums, barrels and tanks without mess, splash or accident-causing tilting. This pump stops evaporation losses. A lift of the hand-drains pump and automatically seals contents inside.

Requires no priming, has no leather or rotating parts to wear out. Sturdily constructed for long, trouble-free service.

Price includes nozzle, 8 foot hose with static wire, end fitting and special suction pipe for a $\frac{3}{4}$ " opening. **\$14.25**

ORDER TODAY DIRECT FROM:

A DEPENDABLE GUIDE TO SAFETY
GENERAL SCIENTIFIC
EQUIPMENT COMPANY
TESTED INDUSTRIAL SAFETY PRODUCTS

10 W. Huntingdon Street • Phila. 32, Pa.
PIRATORS • PUMPS • GOGGLES • SHIELDS • GLOVES • APRONS • HELMETS

When inquiring check CP 5867 on handy form, pgs. 2-3



Write for prices and folder, "A Mat for Every Purpose" for promoting safety and sanitation and reducing fatigue.

- Neo-Cord Oil and Grease Resistant Counter-Tred Matting
- American Counter-Tred Matting
- Ameriflex Hardwood Link Matting
- Tuf-Tred Tire Fabric Matting
- Ezy-Rug Rubber Link Matting
- Perforated Corrugated Matting

The ONLY Successful OIL and GREASE RESISTANT MATTING
Neo-Cord Counter-Tred

Contains no rubber
Made with Dupont Neoprene

AMERICAN MAT CORPORATION
"America's Largest Matting Specialists"
1798 Adams St.
TOLEDO 2, OHIO

Processing Equipment

Work-holder Fits Box Column Drill Presses

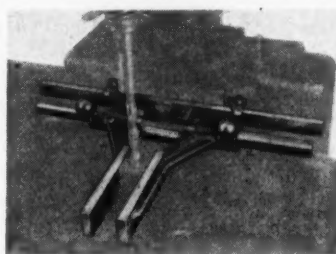
Jaws open for 11" work; can be kept on press at all times

USES — Safety work-holder for all box column, single spindle drill presses. For securing drill press work on tables where there is no provision for clamping with bolts.

FEATURES — Fully adjustable for all presses of this type. Can be kept on press at all times, eliminating delays caused by looking for machine vises or makeshift clamping devices.

Quick and simple.

DESCRIPTION — Model 8 Universal safety work holder is similar to models 1 through 7, locking to the



Safety work-holder

column dovetail. It raises and lowers with drill press table, and locks with a quarter-turn of the handles.

Jaws open full width of bar to accommodate 11" work. If desired, jaws are instantly removable. Work-holder itself is removable from press by loosening 2 set screws.

SOURCE — A development of Universal Vise & Tool Company, Dept. CP, Parma, Mich. . . or for more information check CP 5869 on handy form, pages 2 and 3.

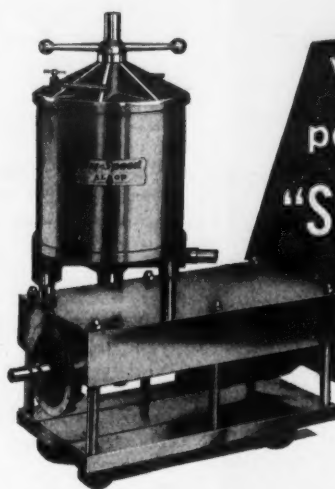


32 Engineering Drawings Show Rubber-flight Pipe Conveyors

32 full-page engineering drawings showing typical applications of rubber-flight pipe conveyors for powders, granules, chips, sludge and crystalline materials are presented in a 40-page booklet.

Pictures and sketches cover drives, vibrator, sludge tanks, trench, pneumatrol and sealed pin chains, plus capacity charts. 52 users are named, with type of application. Catalog 4748, issued by Hapman Conveyors, Inc., Dept. CP, 2405-12 W. McNichols Road, Detroit 21, Mich. When inquiring specify CP 5870 on handy form, pages 2 and 3.

You get uniform clarity



with this compact, portable, easy-to-use
"Sealed-Disc" Filter

Alsop filters of various sizes, made of suitable materials, are at work on chemicals, plating solutions, liquid plastics, liquid soaps, drugs, syrups, foods, beverages, oils, fats, alcohol, water, etc.

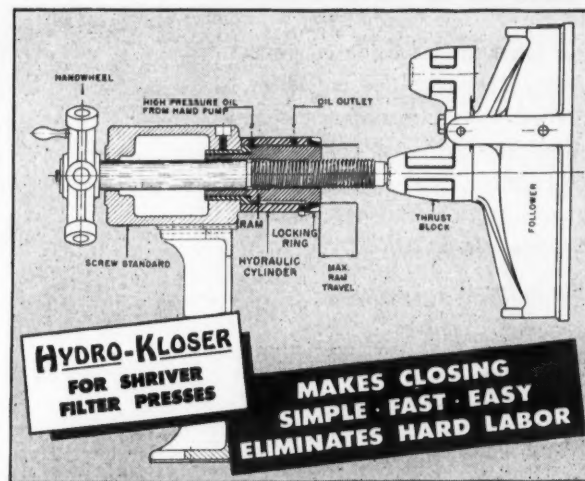
Write for complete details.

ALSOP
ENGINEERING CORPORATION

Filters • Filter Discs • Sheets • Mixers • Agitators
306 Alsop Square, Milldale, Connecticut

Alsop "Sealed-Disc" Filters positively remove all impurities. The unique design assures unsurpassed performance on intermittent or continuous operation and with little or no supervision. You'll find this compact, easy-to-use filter always ready for instant use, completely sealed, leak and drip proof. Available in Stainless Steel, Monel, Nickel Plated Brass and Bronze, etc.

When inquiring check CP 5871 on handy form, pgs. 2-3



SIMPLE DESIGN

EASY TO INSTALL

QUICK OPERATION

SAVES TIME

Now you can equip your 24" and larger Shriver Filter Presses with a really simple hydraulic closing device that's inexpensive, easy to install and operate. It eliminates the hard labor and safety hazards of manual closing, and reduces opening and closing time considerably.

This compact, self-contained, fool-proof Shriver Hydro-Kloser replaces the thrust obtained by manual movement of the screw with

the straight thrust of the hydraulic ram. A few easy strokes of the hand pump close the filter press tight, and a locking nut keeps it tight. To open the press, the locking nut is released and the hydraulic pressure is then released by opening the pump.

The "Hydro-Kloser" is a real aid to filter press operating economy and convenience. Write for Bulletin 125.

T. SHRIVER & COMPANY, Inc., 846 Hamilton St., Harrison, N. J.

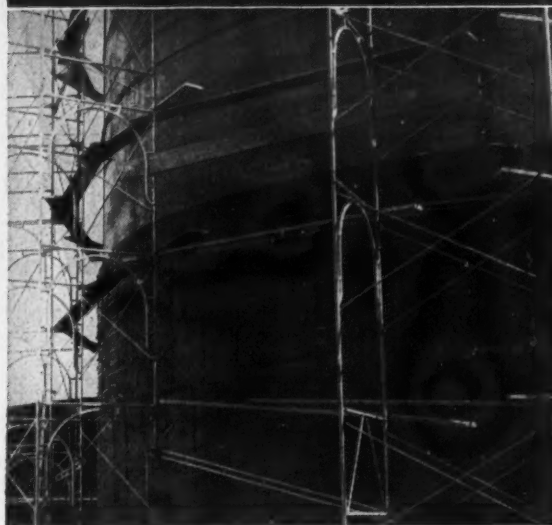
When inquiring check CP 5872 on handy form, pgs. 2-3

When inquiring check CP 5868 on handy form, pgs. 2-3

JUNE, 1948

Page 109

Temperature control demands
Eagle-Picher Insulations



Eagle-Picher Mineral Wool Blankets

give permanent heat-saving performance

Long service does not lower the insulating efficiency of Eagle-Picher Blankets. Their principal ingredient, Eagle-Picher Mineral Wool, does not deteriorate despite continuous exposure to temperatures up to 1200 F. This stability enables Eagle-Picher Blankets to permanently resist water, steam, moisture, corrosive fumes and normal vibration. Complete data on request.

*Let these Eagle-Picher products
also save you money... power... time*

Insulating Felts • Supertemp Blankets • Loose Wool
Pipe Covering • Stalastic • Insulseal • Insulstic
Swetchek • Finishing Cements • Insulating Cements

**EAGLE-PICHER
INSULATIONS for**



High and low temperature

THE EAGLE-PICHER COMPANY
CINCINNATI 11, OHIO

When inquiring check CP 5873 on handy form, pgs. 2-3

Processing Equipment

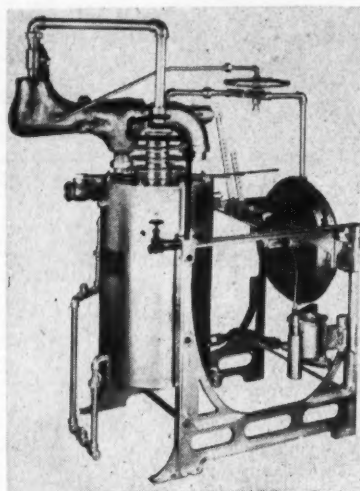
Generates Low Cost Combustible Gas For Ovens, Furnaces

*Vaporized oil combines with air to produce
low hydrogen, sootless, clean flame*

USES — Non-destructively converts light fuel oil to superheated oil vapor which is combined with air and burned as a heat source for ovens and furnaces in heat treating, paint drying, glass annealing, ceramics making, calcining, chemical drying and numerous other processes. Can be used as either a primary or stand-by heat source.

FEATURES — Produces a clean, sootless, odorless flame from a safe, non-volatile fuel oil. Mixture fed to burner contains all the necessary combustion air. It is ignited and burned within burner shielding, but cannot be burned or exploded in presence of secondary air, it is reported. Lower rate of flame propagation minimizes backfires.

Furnace atmospheres of 13.5% CO₂ or better can be maintained under operation with the unit. Theoretical perfect combustion of mixture delivered is 15.3% CO₂.



Vapofier oil-gas generator

Fuel-air ratio is held constant regardless of demand. Flame quality may be varied widely from oxidizing to reducing, and once set, held where desired. Manifold pressure is also automatically held constant.

Less hydrogen in gas means less rusting, scale formation on equipment due to water vapor. No storage problem or hazard because fuel supply, oil, is not compressed and stored. High fuel efficiency is reported. Changeover to or from other gas is made without loss of flame at burners, or interruption of production.

DESCRIPTION — The Vapofier automatically and non-destructively converts light fuel oil to a super-heated oil vapor called Vapogas. This is mixed with air and piped, burned and controlled just as utility gas. Vaporizing process continues as long as oil, combustion air and the pilot flame are present.

Oil is vaporized by drawing hot products of combustion from pilot flame through a pool of oil maintained at constant level in bottom of vaporizing chamber. Lower, open

Save money 4 ways with Farval Centralized Lubrication

FOR more than 20 years, Farval has been saving money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

Write for Free Catalog No. 23 and Case Studies. THE FARVAL CORPORATION, 3257 East 80th Street, Cleveland 4, Ohio.

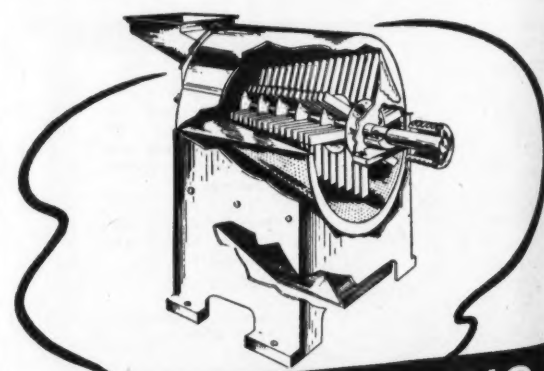
Affiliate of The Cleveland Worm & Gear Co., Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



Write for this
FREE bulletin



When inquiring check CP 5874 on handy form, pgs. 2-3



QUALITY GRINDING
at Lowest Power Cost Per Ton of Capacity

● It so happens that the principle of Gradual Reduction which produces the perfect grind also leads to lower power cost. That's why Prater Gradual Reduction Grinders are used by so many industries for so many applications. Whether your operation is large or small, there's a Prater mill to solve your grinding problems. Consult Prater Service; write now. Prater Pulverizer Company, 1519 South 55th Court, Chicago 50, Illinois.

PRATER PULVERIZERS

When inquiring check CP 5875 on handy form, pgs. 2-3

For Fastenings that **LAST** Think of Monel **FIRST**

Monel* fastenings are called "fastenings that never fail." For they have all the properties you need for dependable nails, screws, nuts, bolts, pins, washers, etc.

They never rust... never "freeze" in position... never cause ugly rust streaks.

They're stronger than brass, or bronze or common steel fastenings... and they stay strong even when used in salt water, corrosive atmospheres, caustics and most acids.

Extra tough and ductile, they take more overstressing than common steel fastenings can take.

Use them in sub-zero cold or at red heat. They are always ready with the strength needed to do their job.

Bury them underground... use them underwater... or expose them outdoors. They'll always give the same dependable service.

But, don't take our word for all this!

Test for yourself the superiority of Monel fastenings. Let us know the type and size you need. We'll have your nearest supplier send samples for testing.

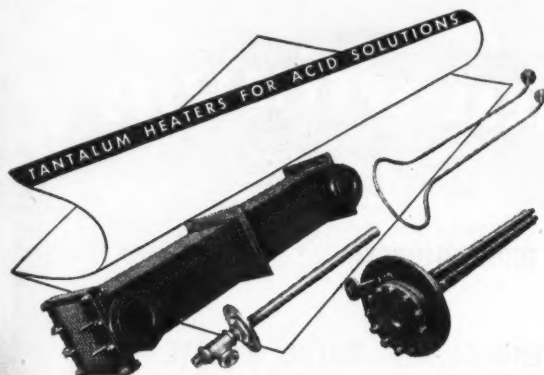
Remember, no matter what type fastening you use, you can get standard types from stock and special ones made on quick order, in stronger, tougher, safer Monel.

*Reg. U.S. Pat. Off.



THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

When inquiring check CP 5876 on handy form, pgs. 2-3

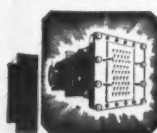


How much would **Tantalum** Acid Heaters Save in Your Plant?

If you are heating corrosive solutions with equipment made of short lived metals or fragile materials subject to thermal shock, tantalum heaters will definitely bring about substantial savings. They are standard in a number of sizes of single and multiple bayonets; coils and shell and tube type heat exchangers are designed and built to specifications.

On your corrosion problems consult with Fansteel Metallurgical Corporation, North Chicago, Illinois.

USE TANTALUM WITH ECONOMY for most acid solutions and corrosive gases or vapors, except HF, alkalis, or substances containing free SO₃.



Fansteel
Acid-Proof
TANTALUM
CHEMICAL PLANT EQUIPMENT

When inquiring check CP 5877 on handy form, pgs. 2-3

JUNE, 1948

Processing Equipment

end of combustion tube extends below surface of oil pool. Next, oil vapor is superheated by pilot-flame gases and by contact with outside wall of combustion tube.

Superheated mixture then is drawn up into ejector where air is added, after which it is discharged under pressure into manifold which supplies pilot flame and burners. Centrifugal blower furnishes air for combustion and to actuate the control mechanism.

Unit instantly and automatically adjusts itself to any change in demand by means of built-in diaphragm control system which meters both air and vapor passing through ejector. Liquid oil is not metered anywhere in system. Superheated oil vapor is drawn off in proportion to weight of air put through ejector.

One gal. of No. 1 fuel oil, for use with the Vapofier, produces 138,000 Btu. Unit is self-contained, rugged and has minimum of parts. Occupies 2 x 4 ft. of floor or overhead space. Installed quickly, at low cost, manufacturer reports.

Available in 8 sizes, ranging from 70,000 Btu. (1/2 gal.) per hour to 2,000,000 Btu (14 gal.) per hour. Each unit has a specific maximum and minimum generating range. Multiple units furnished for greater capacity. Chassis is lightweight, streamlined, cast aluminum.

Approved by Underwriters' Laboratories and Factory Mutual Laboratories.

SOURCE — The Vapofier is a development of the Vapofier Corp., Dept. CP, 10316 S. Throop St., Chicago 43, Ill. . . . or for more information check CP 5878 on handy form, pages 2 and 3.

BARBER-COLMAN

MICRO SYSTEM FOR PROCESS CONTROL

MICROTHERM

By using a solenoid-loaded contact tongue, with the pull of the solenoid governed by a rheostat on the valve motor shaft, the Microtherm is able to position the Proportioning Valve so as to satisfy exactly any change in demand. Features include simple construction, no relays, and maximum power at all points of valve stroke. "Hunting" is eliminated and the valve is positioned quickly with "micrometer accuracy." Write for Bulletin "CONTROLS FOR INDUSTRY."



PROPORTIONING
VALVE

BARBER-COLMAN COMPANY

1203 ROCK ST., ROCKFORD, ILL.

When inquiring check CP 5879 on handy form, pgs. 2-3

THE UNION SPECIAL Electronic SEAMER



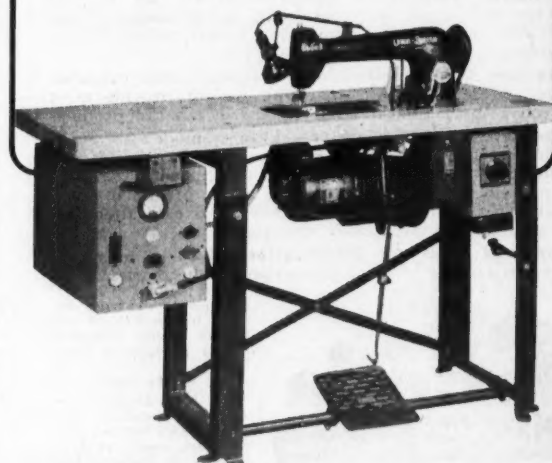
for faster sealing of Plastic Film materials

- **VERSATILITY.** Heat seals VINYLITE, KOROSEAL, VELON, WATASEAL, PLIOFILM, and other non-conducting thermoplastic films.
- **ADVANCED DESIGN.** Increased convenience in operation . . . precision control . . . high uniformity in work produced.
- **IMPROVED SPEED.** No stopping for adjustments when crossing seams.
- **A QUALITY PRODUCT.** Built to Union Special's standards for quality. Ask for new bulletin No. 257.

UNION SPECIAL MACHINE COMPANY

442 N. Franklin St.,

Chicago 10, Ill.



Union Special
Machine Company

When inquiring check CP 5880 on handy form, pgs. 2-3

FINISH DRYING WITH INFRA-RED



**8 TIMES
Faster**

There's good reason why the Phil R. Hinckley Co., Cleveland, has gone all out for Fostoria Evenray. Finish drying on the lighting fixtures and gift items they manufacture, previously required 45 to 60 minutes with another type oven. NOW finishes are baked better in 5 to 8 minutes—and at lower cost. As illustrated, one oven is suspended from the ceiling to save space and a smaller oven is located on the floor.

ONLY FOSTORIA EVENRAY EQUIPMENT HAS ALL THESE ADVANTAGES—

1. **Lower Unit Operating Cost**—Greater efficiency of gold reflectors requires lower connected load—provides maximum utilization of energy.
2. **More Uniform Coverage**—Evenray equipment design gives extraordinarily even distribution of energy on products being processed—as little as 2% variation.
3. **Maximum Temperature Range**—Delivers up to 125 BTU's per square inch per hour. Accommodates from 80 watt to 1000 watt lamps for fastest processing according to job requirements.
4. **Maximum Energy Utilization**—Two-wall oven construction and gold interior reflecting surface provide most effective insulation; it puts the energy on the product.
5. **Complete Line of Equipment**—Evenray models are available for spot heating or full ovens, utilizing clear or reflector type lamps; permitting a choice for best results depending on nature of product to be processed. Flexibility of construction permits quick and easy alteration or addition for production changes.
6. **Approved Electrical Construction**—Listed under Re-examination service of Underwriters' Laboratories, Inc.



Fostoria invites your request for analysis of any baking, drying, dehydrating or pre-heating problem.

Write for Literature

Ask for brochure EV-1146 which pictures and describes many applications with Evenray Systems.

THE FOSTORIA PRESSED STEEL CORP.
FOSTORIA, OHIO

In Canada—Amalgamated Electric Corp., Ltd., and all Northern Electric Branches

When inquiring check CP 5881 on handy form, pgs. 2-3

Processing Equipment

Small Power-belt Conveyors Feature Convertible Length; Speed Handling

"Junior" floor and Stevedore power-belt conveyors which include such features as convertibility to new lengths and 1-piece box channel construction are specified and illustrated in a 2-page bulletin. Line drawings show use in installations for increased material handling efficiency.

Form SF-148, issued by The Rapids-Standard Company, Inc., Dept. CP, Dept. SF96, 342 Rapistan Bldg., Grand Rapids 2, Mich. When inquiring specify CP 5582 on handy form, pages 2 and 3.

Gas Burner Units Used to Heat Immersion Heater Tubes

Special spacer cages insure entrainment of proper amounts of secondary combustion air

USES — Burner assemblies for gas-firing immersed tubes used to heat water, oils, etc.

FEATURES — Assemblies contain well-designed spacer cages which insure entrainment of required amounts of secondary combustion air.

DESCRIPTION — "Coil Cages" are furnished separately, or in ready-for-installation assemblies, complete with mixers, etc. Atmospheric type burner comprises a gas cock, low pressure injector, flame-retaining burner nozzle, coil cage with pilot. Usable with gases having btu contents from 450 to 3200 btu, at pressures from

NEW DIRECT DRIVE TUBE CLEANER WEIGHS ONLY 21 lbs.



So light and easy to handle it can be used with or without supporting rig. Handle valve gives operator positive control. Direct drive motor is air or steam driven. Thoroughly cleans all scale conditions.

FOR COMPLETE INFORMATION
WRITE . . . THE AIRETOOL MFG.
CO., 331 S. CENTER ST.,
SPRINGFIELD, O.



N. Y. office: 50 Church
St., New York 7, N. Y.

When inquiring check CP 5883 on handy form, pgs. 2-3

**KESSCO
PRODUCTS**

CHEMICAL SPECIALTIES

PROPYLENE GLYCOL DIPROPIONATE

DIBUTYL TARTRATE

BUTYL STEARATE

BUTYL OLEATE

BUTYL "CELLOSOLVE" * STEARATE

METHYL "CELLOSOLVE" OLEATE

*TRADEMARK OF C & CCC

STEARATES

PALMITATES

OLEATES

RICINOLEATES

LAURATES

for the

Textile, Cosmetic, Pharmaceutical, Petroleum, Plastic and Allied Industries

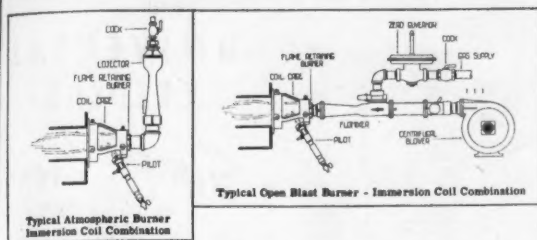
KESSLER CHEMICAL CO., INC.

ESTABLISHED 1921

STATE ROAD and COTTMAN AVE., PHILADELPHIA 35, PA.

When inquiring check CP 5884 on handy form, pgs. 2-3

Processing Equipment



Atmospheric and blast type burners

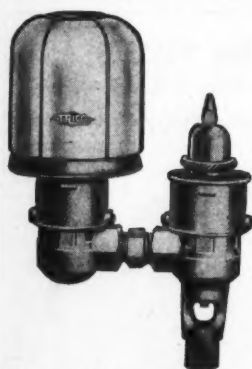
3" to 12" w. c.; rated 27,500 — 350,000 btu/hr. Coil sizes, 1½" to 6" dia.

Blast type assemblies permit higher capacities by using air under pressure. Units have zero governor for controlling gas supply, and a pressure type mixer. Centrifugal blower for pressure air may be supplied as part of packaged assembly. Uses air at 4 oz., 8 oz. or 16 oz. pressure; delivers up to 1,400,000 btu/hr.

SOURCE — Product of the Bryant Heater Co., Industrial Div., Dept. CP, 1020 London Rd., Cleveland 10, Ohio . . . or for more information check CP 5885 on handy form, pages 2 and 3.

Feeds Filtered Oil Accurately at Any Pre-set Rate

1, 2, 4 and 8-oz. gravity oilers assure accurate feed regardless of oil-level



Gravity-feed oiler

USES — Gravity-feed precision oiler for solid bearings requiring filtered oil at accurate, pre-determined rate of feed.

FEATURES — Removable filter prevents dust or dirt from reaching bearing or clogging needle valve. Simple adjustment permits feeding drops of oil at any pre-determined rate. Accurate to last drop, manufacturer reports.

DESCRIPTION — Available in 1, 2, 4 and 8-oz. capacities.

Unit at left in illustration maintains accurate, constant level in gravity feed mechanism at right. This uniform level assures accurate rate of feed regardless of oil-reserve in bottle.

Oil is mounted at top of part to be lubricated. After adjusting needle valve for rate of feed, no further attention is required except checking of reserve oil supply in bottle. When shut-off lever is vertical it feeds oil. When tilted to side, flow is stopped. When held at 45° angle, it flushes bearing, as in cases where this is desirable before starting machine.

All metal parts are heavily plated to resist corrosion, enhance appearance and facilitate cleaning.

SOURCE — Manufactured by Trico Fuse Mfg. Company, Dept. CP, 2948 N. 5th St., Milwaukee, Wis. . . or for more information check CP 5886 on handy form, pages 2 and 3.

*Announcing
The Lightest,
Easiest-to-Handle
Power Unit Made*

The New RIDGID Porta-Power DRIVE



For operating
hand threaders,
cutters,
reamers

HERE'S POWER where you want it—more portable than ever before; RIDGID Porta-Power Drive weighs only 100 pounds. One man can carry it—a cinch for two men. Modern case of new light alloy matches top grade malleable for strength and durability.



Back view of Porta-Power showing self-centering workholder.



Four 1" standard pipe lengths make handy Porta-Power Drive stand.



With RIDGID Universal Drive Shaft, Porta-Power Drive operates geared die stocks and cutters up to 8."

RIDGID designed for safe, easy operation. RIDGID 3-jaw lathe-type scroll chuck in front; self-centering workholder in rear turns with pipe. Any 60 cycle, 110 volt electric light outlet powers it. Recessed starting switch protected against bumps; special chuck-wrench ejector removes the wrench you may forget.

No upkeep bother or expense. Sealed-in lubrication—no oil to spill. Chuck and workholder ends of drive shaft ride in oilless graphite bronze bearings. Motor bearing and reduction gear lubrication sealed in. Heavy adhesive graphite grease, that won't freeze or melt, lubricates driving gear.

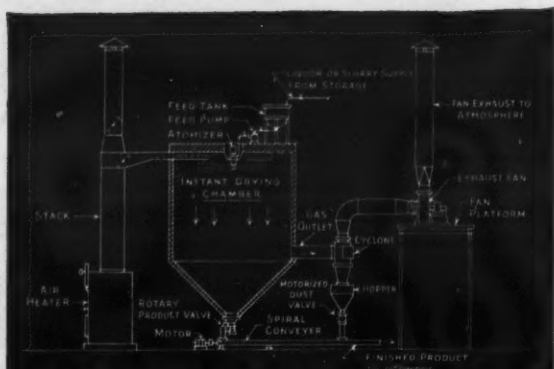
See the new Porta-Power Drive at your supply house. RIDGID Porta-Power Drives have been exhaustively tested in factory and field. Buy at your Supply House.

RIDGID

WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

When inquiring check CP 5887 on handy form, pgs. 2-3



LOW COST DRYING with The "INSTANT DRYING" System

- Less power and a smaller connected load required.
- Large capacity, rugged construction.
- Requires a minimum of labor and attention (one man can supervise the operation of a battery of several Instant Drying units per shift).

Many of your industrial colleagues have proved the savings that can be secured through the use of THE INSTANT DRYING SYSTEM. Write to us on your drying problem. We shall answer your questions and send you detailed literature on THE INSTANT DRYING SYSTEM.

INSTANT DRYING CORPORATION

101 Park Avenue, New York 17, N.Y.

Testing and Research Laboratories at Poughkeepsie, - N. Y.
Engineering by CLARK, MacMULLEN & RILEY, INC., New York

When inquiring check CP 5888 on handy form, pgs. 2-3

Unique Design of Single Stage Pump Produces High Vacuum Faster, More Efficiently and Safely

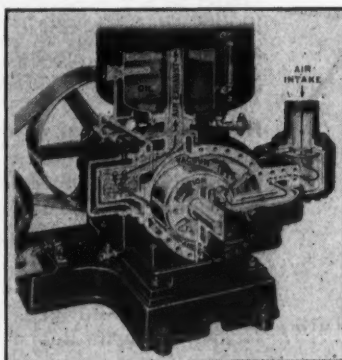
ADVANTAGES

- Top Vacuum — to 10 microns
- High Speed Evacuation
- Noiseless • Vibrationless
- Low Power Consumption
- Corrosion Resistant
- Long Service Life
- Capacities to 845 c.f.m.

The pump has only 2 moving parts — rotor and slide valve, always completely sealed in pump cylinder. As rotor turns, slide valve acts as piston forcing all air out of cylinder through discharge valve and lubricator above it, creating a constant vacuum behind the slide valve piston.

The combination of mechanical inlet slide valve, automatic exhaust valve, and rotary pump with rocker oil seals on slide valve, account for the unusually high vacuum and volumetric efficiency in this single stage pump.

CHEMICAL • METAL REFINING AND RESEARCH WORK



Write for Catalog No. 84
BEACH-RUSS COMPANY
46 CHURCH ST., NEW YORK 7, N. Y.

BEACH-RUSS TYPE RP VACUUM PUMPS

When inquiring check CP 5889 on handy form, pgs. 2-3

Processing Equipment

Cartridge Demineralizer Treats 5-8 Gal. Water per Hr.

*Replaceable cartridge is heart of system;
indicator tells when to replace*

USES — Small demineralizer to produce mineral-free water for laboratories, storage batteries, X-ray tube cooling, other small-demand uses.

FEATURES — Economical unit producing water at low cost. Simple, self-contained construction. Indicator tells whether effluent is "good" or "bad". Treating cartridge is easily replaced. Easy to install, maintain and operate. Reliable. No heat, steam required. Water delivered is free from calcium, magnesium and heavy salts.

DESCRIPTION — Unit consists of 3 parts: removable cartridge, cast aluminum wall bracket or holder, electronic conductivity meter which measures quality of effluent water. Heart is the disposable cartridge, similar in principal to flashlight battery it is stated. Cartridge comes packed with four beds of activated "Ionac" (American Cyanamid) ion-exchange resins. Each cartridge has capacity for salt removal of 500 to 600 grains. Production capacity is 5 to 8 gal. treated water per hour.

It is claimed that effluent contains less than 2 parts per million of ionizable salt and has pH of 6.5 to 7.5.

SOURCE — This small demineralizer is made by the Penfield Manufacturing Co., Dept. CP, P. O. Box 972, 19 High School Ave., Meriden, Conn. . . or for more information check CP 5890 on handy form, pages 2 and 3.

Offers Conveyor or Special-type Chain

Quick engineering, tooling and production of conveyor and special-type chain for individual needs is described in a 4-page leaflet. Typical examples are pictured.

These include flat top conveyor chain for bottling and canning; roller and replacement chain, etc. Bulletin 101, issued by Black Chain Company, Div. of Black Industries, Dept. CP, 1400 E. 222nd St., Cleveland 17, O. When inquiring specify CP 5891 on handy form, pages 2 and 3.

Charts Properties, Uses of Nickel Alloy Steels

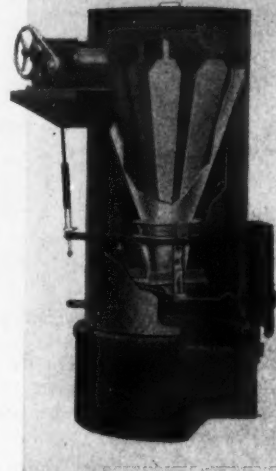
Properties and uses of heat-treated, wrought nickel alloy steels are described in this 26-page booklet. 58 charts and 5 tables are presented, along with factual information covering strength, wear resistance, toughness, ductility, uniformity, dependability and other features.

Issued by The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 5892 on handy form, pages 2 and 3.

OMEGA

UNIVERSAL FEEDERS

Simple? YES!
Dependable? ALWAYS!



- Surprisingly few working parts . . . nothing to get out of order.
- Large openings; no tricky adjustments or close fits . . . feeds lumps or fine powder without clogging.
- Feeding speed adjustable over range from 40 to 1 . . . accuracy within $\pm 3\%$.

• Omega plate agitators . . . prevent arching of materials in bin.

• Available in three sizes for feeding 1 to 5,000 pounds per hour.

Write for Bulletin 1-4.

OMEGA MACHINE COMPANY

(Division of Builders Iron Foundry), 41 Coddling St., Providence 1, R. I.

When inquiring check CP 5893 on handy form, pgs. 2-3

UNFIRED PRESSURE VESSELS

— constructed under A.S.M.E. Code,
Par. U-69, for many purposes



Welded "Standard Special" Oil Separator for 28" Vacuum

Materials and man-power are now available to devise and fabricate special applications of tank construction.

Many years of experience building A.S.M.E. inspected and approved vacuum and high pressure vessels have qualified our engineers to provide a satisfactory solution to many troublesome problems in this class of construction. All work fabricated by approved welders and produced under A.S.M.E. inspection.

Send Blue Prints or Specifications for Quotations on Your Requirements.



WRIGHT-AUSTIN COMPANY

318 West Woodbridge St. Detroit 28, Mich.

WRIGHT-AUSTIN

SERVING INDUSTRY FOR MORE THAN 50 YEARS

When inquiring check CP 5894 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Processing Equipment

Electrically Etches Names, Marks, Numbers on Most Metals

Provides economical production marking where small piece-lots prohibit stamping



USES — Electrically etches names, numbers, trade marks, etc. on steel, brass, copper, alloys, magnesium, zinc, bronze, tin, cadmium, other metals. Particularly suited for small plants which do not make enough parts of one size to justify making a die for stamping or

Etching of round form on electric etcher

rolling mark on work, but where more uniform mark than can be produced by electric pencil etcher is desired.

FEATURES — Will not mar surface, but leaves permanent mark desired. Marks rounds or flats. Stencil can be used for 200 markings; in some cases, special celluloid stencils can be furnished which will withstand thousands of markings, it is reported. Mark can be placed on after piece is hardened and ground or plated; no burr is made by marking in this way.

In production setups, speeds approaching those of stamping are reported and appearance is said to be comparative. Unit is portable and compact.

Absence of strong acids means no injury to operator or his clothes from this source. Absolutely no danger from shocks, it is said.

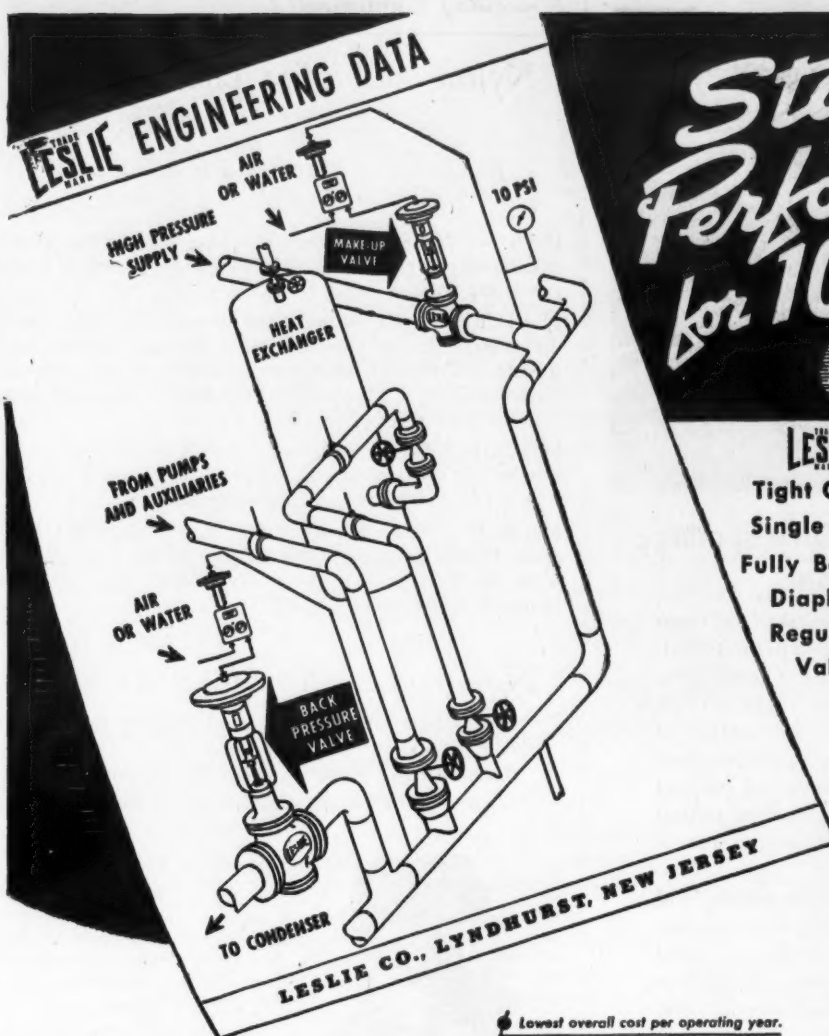
DESCRIPTION — Metals are electrically etched. One side of circuit is connected to pan or reservoir, which contains sponge saturated with etching solution, by means of a wire. Solution is very weak acid which acts as electrolyte. Cloths saturated in etching solution are placed on perforated plate over sponge. Stencil is placed on top of these cloths.

Work to be marked is placed on stencil so as to contact guide bar which is connected by wire to other side of circuit. Electric circuit is completed when either momentary or "on-off" switch is engaged. Stencil, similar to mimeograph stencil, acts as insulator except where it is marked. Oxidation of metal occurs at marked portions of stencil when current flows. Stencil can be cut on typewriter with ribbon removed or with stylus. For large number of pieces, stencils can be furnished by manufacturer, as specified.

Etching fluids are of two types for two specific metal classifications. They are not corrosive themselves and do not need to be neutralized after marking. However, usage of rust-prevention material is recommended; this can be furnished by manufacturer.

Operates on 115 volts, 60 cycle AC; can be furnished for 230 volt operation. Ammeter and rheostat provided promote proper current regulation. Current desired depends on material marked and depth of mark desired. Stencil film is $2\frac{1}{2} \times 6\frac{3}{4}$ ". Unit measures $9" \times 11" \times 7\frac{3}{4}"$.

SOURCE — "E-Z Mark" etcher is a product of the Crown Industrial Products Co., Dept. CP, 1525 E. 53rd St., Chicago, Illinois . . . or for more information check CP 5895 on handy form, pages 2 and 3.



Lowest overall cost per operating year.

This typical piping layout shows how **LESLIE** Diaphragm Regulating Valves with **LESLIE** Control Pilots (air or liquid operated) are used to maintain exact pressures within close limits.

Accuracy and reliability are very important to assure constant steam pressure for feed water heating and many kinds of process heating. The make-up valve supplies steam at 10 PSI to supplement exhaust from auxiliaries and the back pressure valve relieves any excess steam at 12 PSI to the condenser or to atmosphere.

For full details send for your copy of Bulletin 462.

LESLIE CO. 305 Grant Avenue
Lyndhurst, New Jersey

Look for **LESLIE** REGULATORS under "Valves" or "Regulators" in your classified telephone directory in the following cities where **LESLIE** factory trained engineers are located:



Akron, Ohio
Albany, N. Y.
Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Boston, Mass.
Bridgeport, Conn.
Buffalo, N. Y.
Chicago, Ill.
Cincinnati, Ohio

Cleveland, Ohio
Dallas, Texas
Denver, Colo.
Detroit, Mich.
Greensboro, N. C.
Hartford, Conn.
Houston, Texas
Kansas City, Mo.

Kingsport, Tenn.
Los Angeles, Cal.
Louisville, Ky.
Memphis, Tenn.
Minneapolis, Minn.
Montreal, Que., Can.
New Orleans, La.
New York, N. Y.
Orlando, Fla.
Philadelphia, Pa.

Pittsburgh, Pa.
Portland, Ore.
Providence, R. I.
Richmond, Va.
Rochester, N. Y.
Rutherford, N. J.
San Antonio, Texas
San Francisco, Cal.
Savannah, Ga.

Seattle, Wash.
Spokane, Wash.
St. Louis, Mo.
Syracuse, N. Y.
Toronto, Ont., Can.
Tulsa, Okla.
Vancouver, B. C., Can.
Wilkes-Barre, Pa.
Youngstown, Ohio
Honolulu, Hawaii

PRESSURE REDUCING VALVES
TEMPERATURE REGULATORS

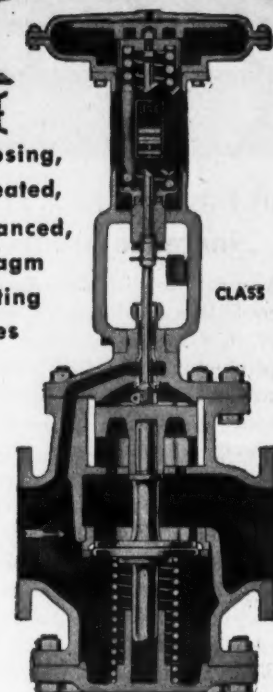
PUMP GOVERNORS
SELF CLEANING STRAINERS

PRESSURE CONTROLLERS
LESLIE-TYFON WHISTLES

When inquiring check CP 5896 on handy form, pgs. 2-3

Starred Performance for 10 Years

LESLIE
Tight Closing,
Single Seated,
Fully Balanced,
Diaphragm
Regulating
Valves



Offer These **ADVANTAGES**

- ★ **SINGLE SEATED, FULLY BALANCED**—combines dead-end, tight shut-off with double seated capacity; smooth response for small changes in diaphragm pressure.
- ★ **SMOOTH THROTTLING CONTROL**—without pressure drop limitation up to 600 PSI. Sizes up to and including 8" with bronze or cast iron bodies, $1\frac{1}{4}$ "-4" cast steel.
- ★ **LARGE CAPACITY**—equal to or greater than standard, long stroke, double seated valves.
- ★ **LOW FRICTION STUFFING BOX**—specially designed packing including plastic, asbestos and metal rings in each set, requires minimum attention.
- ★ **INTERCHANGEABILITY OF REPLACEMENT PARTS**—hardened main valves, hard face seat rings and hardened stem bushings renewable.

Ventilate your plant
the "open roof" way
with Swartwout
AIRMOVER

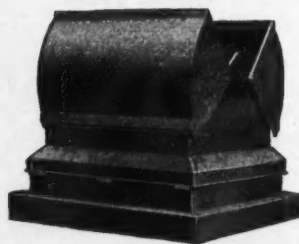


Cut time losses . . . reduce spoilage . . . increase production

You can imagine the effectiveness of an "open roof" like the above on your glass plant, foundry, heat-treatment room or other large heat-producing operation. Swartwout AIRMOVER covers thousands of square feet of industrial roofs, gives heat, smoke, fumes and dust easy passage through efficiently designed parallel openings. Dampers provide full or partial closing when desired, but ventilator system is weatherproof at all times.

AIRMOVER is made in units which "add together" to make runs as long as necessary. Parallel runs make possible practically total roof coverage. Ventilator is only 32" high—doesn't add unmanageable weight to your roof.

Swartwout Ject-O-Valve does a real job where power ventilation is needed



Over vats, furnaces and other concentrated heat spots you can profitably use this powerful "straight-through" powered Ject-O-Valve. Made in sizes and capacities to fit your need.

Swartwout new catalog describes full line of gravity and power roof ventilators. Ask for Bulletin 324.

The Swartwout Company
18539 EUCLID AVENUE • CLEVELAND 12, OHIO

Swartwout
Controlled Air Circulation

EQUIPMENT FOR EFFECTIVE ECONOMICAL
VENTILATION OF INDUSTRIAL BUILDINGS

When inquiring check CP 5897 on handy form, pgs. 2-3

Page 116

Processing Equipment

Nylon Multiplies Life, Strength of Abused V-Belting

*Reinforced belts withstand heat, oil; offer
high tensile strength plus elasticity*

USES — Nylon-reinforced V-belting for power transmission on equipment subject to rough usage, such as paper processing and oil well machinery.

FEATURES — Offers twice the strength and four times the average life of conventional V-belting, manufacturer reports. Withstands deteriorating effects of heat and oil. High tensile strength plus great flexibility. Sufficient elasticity to absorb shock.

DESCRIPTION — Made in fractional and multiple sizes, this belting contains a series of tough nylon cords covered with a special synthetic rubber compound.

SOURCE — Super Service V-Belt is a product of United States Rubber Company, Dept. CP, Rockefeller Center, New York, N. Y. . . . or for more information check CP 5898 on handy form, pages 2 and 3.

★

Non-oxygen Apparatus Delivers Air for Work or Emergency

*Back or sling packs, extension-hose units aid
workers in toxic gas, petroleum vapor*



"Air-Pak" breathing apparatus

as 150 feet from breathable atmospheres.

For cleaning and inspecting tanks, tank cars and trucks, utility tunnels, and in fire fighting or rescue work. Useful in temperatures ranging from sub-zero to oven-heat. For inspecting or repairing stacks, cleaning large ducts, handling chemical "spills," ammonia "breaks," "degreaser clean-outs," etc. Useful in chemical plants, oil

USES — Breathing apparatus for use in atmospheres of smoke, toxic gases or oxygen deficiencies. Manufacturer also recommends for use in presence of petroleum vapors.

For use by individuals in emergencies or as working equipment, and for durations ranging from a few minutes to several hours. Certain extension-hose types permit use during an entire shift, if necessary. Work gangs, each member individually protected, may work as far

LOW PRESSURES FOR SALE

Kinney High Vacuum Pumps meet every requirement — both in degree of vacuum and in capacity — for exhausting lamps and tubes, dehydrating foods, producing drugs, sintering alloy metals and performing countless other low pressure operations.

SINGLE STAGE VACUUM PUMP

MODELS VSD and DVD

Eight pump sizes cover a capacity range from 13 to 702 cu. ft. per min. with motors from 1/2 to 40 hp., respectively. Will produce low absolute pressure readings of 10 microns (.01 mm. Hg.).

10 MICRONS ▶

COMPOUND VACUUM PUMP

MODEL CVD

Two sizes of Compound Pumps are available in capacities of 15.2 or 46 cu. ft. per min., with 1 and 3 hp. motors. Low absolute pressures to 0.5 micron (.0005 mm. Hg.) are regularly maintained.

Ask for Vacuum Pump Bulletin V45. 0.5 MICRON ▶

KINNEY MANUFACTURING COMPANY

3573 WASHINGTON ST., BOSTON 30, MASS.

New York • Chicago • Philadelphia • Los Angeles • San Francisco

We also manufacture Liquid Pumps, Clutches and Bituminous Distributors

When inquiring check CP 5899 on handy form, pgs. 2-3



For Full Details Write
Today for Bulletin 501A

When it's magnetic protection... see Eriez first

ERIEZ MANUFACTURING COMPANY

16 East 12th Street • Erie, Pennsylvania

When inquiring check CP 5900 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Processing Equipment

refineries and oil fields, laboratories, paper mills, mines and similar locations.

FEATURES — Delivers air instead of oxygen, and in amounts, or at rates, required by user. Indicating gauge, in full view, gives positive check of available air supply. Ready for use "in less than a minute." Can be installed at entrance to danger areas and at plant fire-fighting stations, permitting immediate action during vital minutes before arrival of fire department. Requires no complicated training.

Reduces industrial breathing hazards. Clear, wide-vision lenses. Bureau of Mines approval No. 1308.

DESCRIPTION — In 3 models: back pack, sling pack or extension-hose assembly. Custom-built gauge on cylinder shows air-content at all times. Regulator controls flow to user. Straps and fittings are acid and corrosion-proof.

Back pack types have either 28 or 38 cu. ft. cylinders, contoured back plate, sturdy ring for safety rope, also guard for valve handle. Air cylinder is attached to back plate with cam lock. Large cylinder provides over 30 min's. air supply at extreme exertion, or up to 1 hr. otherwise. Small cylinder has extreme-exertion life of 20 min's., or 45 min's. normal life.

Sling pack for laboratory or general emergency use, shutting off valves on gas lines, etc., has extremely lightweight cylinder with average life of 16 min's. normal exertion. Both wall and carrying-cases are available, the former with a glass window for periodic inspection of cylinder air supply. A carrying-case is also available for back pack models.

Constructional design includes tilt "demand valve," demand regulator, swivel joints for regulator connection, large waterproof radium-dial indicating gauge on regulator, etc.

SOURCE — "Air-Pak" breathing apparatus is manufactured by Safety Equipment Div., Scott Aviation Corp., Dept. CP, Lancaster N. Y. . . . or for more information check CP 5901 on handy form, pages 2 and 3.

★

Water Treater Combines Mixing, Floc Formation, Settling, Thickening in One Vessel

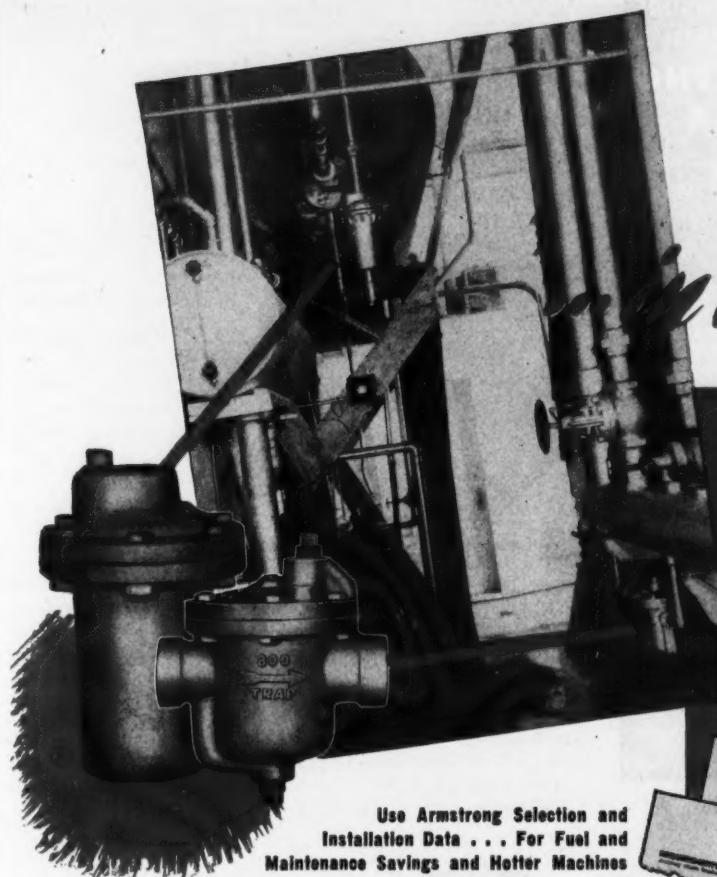
12-page booklet describes "Rapid Reactors", for use in conditioning of boiler and cooling water, and supplementary equipment. 4-color diagram is used to explain operation of reactor which combines the basic elements of equipment for mixing, floc formation, settling and thickening in one vessel.

Three general designs cover ranges to 100 gpm, 100 - 500 gpm and 500 - 3,000 gpm. Methods of application for coagulation of turbidity alone, partial softening with coincident turbidity reduction and complete softening and turbidity reduction are pointed out. Advantages are listed.

Auxiliary equipment (pressure filters, gravity filters, electrically-operated and mechanically-operated proportioners, proportioning pumps, dry feeders, and other supplemental apparatus) is described and illustrated; installation diagrams are shown. Two typical layouts are presented. Some publications covering other equipment of manufacturer are pictured. Publication 4425.

Issued by Cochrane Corp., Dept. CP, 17th St. and Allegheny Ave., Philadelphia 32, Pa. When inquiring specify CP 5902 on handy form, pages 2 and 3.

JUNE, 1948



Use Armstrong Selection and Installation Data . . . For Fuel and Maintenance Savings and Hotter Machines

There is more to good steam trapping than meets the eye. For example, intelligent trap selection involves not only the normal condensate load but must take into account peak load and the amount of air to be handled as well. The Armstrong Steam Trap Book tells how to figure condensate loads, what to do about large amounts of air and how to determine trap capacity needed for various services. It follows up with actual hot-condensate capacities of Armstrong traps. (Some trap capacity figures are based on cold water ratings, misleading because any trap will handle more cold water than it will hot condensate).

Then, because a properly selected trap won't function efficiently if it is not correctly installed, The Armstrong Steam Trap Book provides complete data on installation practice. But, even the Steam Trap Book can't think of *everything*, so the Armstrong factory and trained sales representatives stand ready to give you a lift on the really tough trapping problems.

These are a few of the reasons why Armstrong traps can be sold on a basis of "COMPLETE SATISFACTION OR YOUR MONEY BACK."

Send for a copy of the Steam Trap Book and plan now to modernize your condensate drainage system with Armstrong traps.

ARMSTRONG MACHINE WORKS
880 Maple St., Three Rivers, Michigan

How to get the
right steam trap
in the right place!



ARMSTRONG STEAM TRAPS



When inquiring check CP 5903 on handy form, pgs. 2-3

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TEST FASTER... MORE ACCURATELY WITH A

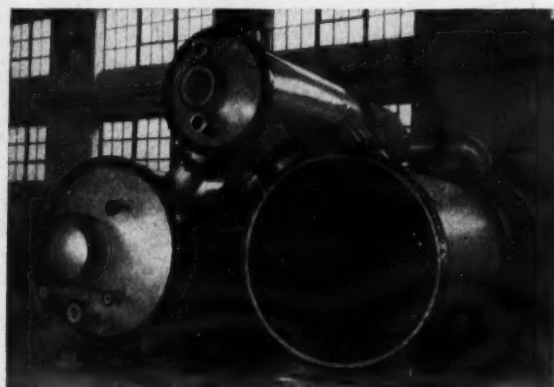
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SCALE TO FIT
YOUR NEEDS.
SEND FOR
CATALOG TODAY

YALE THE YALE & TOWNE MANUFACTURING CO.
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HAND LIFT AND ELECTRIC TRUCKS - HAND AND ELECTRIC HOISTS - SCALES

When inquiring check CP 5904 on handy form, pgs. 2-3



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the process industries... BRIGHTON is your FIRST
CHOICE.

Brighton Twin Base Heater 5'
diameter 20' long. All copper ex-
cept steam chest of steel. Ap-
proximately 4000 sq.
feet of heating sur-
face. Especially de-
signed and built.

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my part send complete data, cat-
alog on your process equipment.

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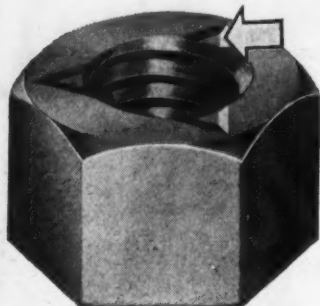


When inquiring check CP 5905 on handy form, pgs. 2-3

Processing Equipment

Lock Nut Holds Better; Grips Tight After Many Tightenings

*Locks fast on threads not held to close tolerances;
no-slip in oil, water, chemicals*



Improved lock nut, showing triangu-
lar deflections

USES — Self-locking
lock nut for tight hold-
ing even in presence
of oil, water, chemicals.

FEATURES — Greater
sustained holding pow-
er. May be removed
and replaced many
times without losing
gripping ability. Ef-
fectively locks on
threads not held to
close tolerances.

DESCRIPTION —
Self-locking; requires
no lock washer or cot-
ter pins; may be applied with only a wrench. Widening
and deepening of original triangular deflections on top
of nut has resulted in the advantages listed. Available in
standard sizes, semi-finished.

SOURCE — This improved lock nut is a product of the
Grip Nut Company, Dept. CP, 310-Q South Michigan
Ave., Chicago 4, Ill. . . . or for more information check
CP 5906 on handy form, pages 2 and 3.

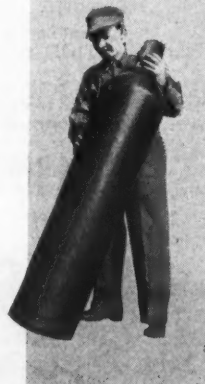
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to meet your requirements

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fully considered in the design
and construction of Hackney
Seamless Cylinders. Thus, you
get a strong yet lightweight cyl-
inder—a container that assures
lowest transportation costs, full
protection to product, ease of
handling and utmost resistance
to transportation and handling
abuse. Write for full details.

- Light Weight
- Strength
- Proper Design
- Attractive Appearance
- Durable Construction

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are manufactured
to specifications
that exceed the
minimum require-
ments set up under
ICC regulations.



Pressed Steel Tank Company

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235 Hanna Bldg., Cleveland 15
208 S. La Salle St., Room 2085, Chicago 4
548 Roosevelt Bldg., Los Angeles 14
Containers for Gases, Liquids, and Solids

When inquiring check CP 5907 on handy form, pgs. 2-3

Here is the pair for clean, dry air . . .

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Used where mois-
ture is vaporized
by the heat of com-
pression. Circulates
cooling water
around the line,
condenses the oil
and water vapor so
Separator can re-
move them. Simple
in design, highly
efficient in per-
formance.

SIZES
FOR ALL
NEEDS

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SEPARATOR**
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than 99% of all
water, dirt and oil
from compressed
air or steam. Com-
bines the two best
principles of separa-
tion—first allows
air to expand
slightly, then
changes flow direc-
tion with the
"Thousand Baffles".
Model illustrated is
separator idea in
with self-draining
trap mechanism
built right in.

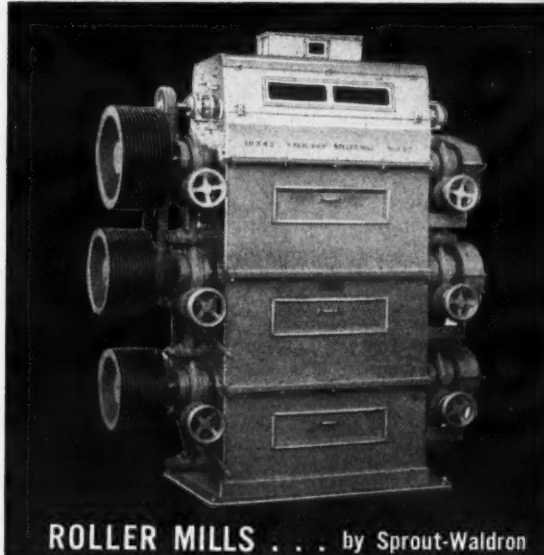
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BULLETIN



The Johnson Corporation

826 Wood St., Three Rivers, Michigan

When inquiring check CP 5908 on handy form, pgs. 2-3



ROLLER MILLS . . . by Sprout-Waldron

Sprout-Waldron Roller Mills are in use on materi-
als ranging from hard flinty slate to soft spongy
cork. By varying roll corrugations and differen-
tials, you can reduce to FLOUR fineness, GRAN-
ULAR or FLAKE form as desired.

Consider a S-W System based on stage reduction
by rolls. Write for details.

SPROUT-WALDRON & CO.

Manufacturing Engineers

MUNCY

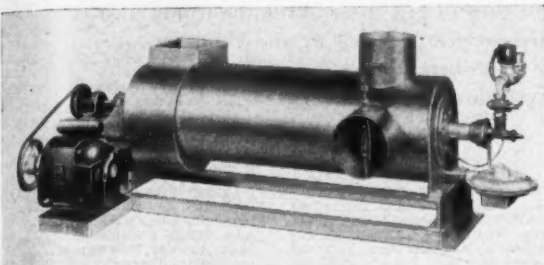
PENNSYLVANIA

When inquiring check CP 5909 on handy form, pgs. 2-3

Processing Equipment

Direct-fired Air-heater Provides 125,000 Btu/hr at 350° F.

"Packaged" unit, including temperature and safety controls, easily installed, economical



"Packaged" 125,000 Btu/hr air heater

USES — Furnishes hot air for drying-rooms, industrial ovens, baking lacquers and enamals on metal ware, baking varnish on coils and armatures, curing rubber products, drying of paint, paper, soap pads, etc.

FEATURES — "Packaged" unit is direct-fired for maximum efficiency. Lends itself to many uses. Good turn-down range, allowing proper temperature control. Low-cost, easily installed, simple to operate. Safety devices designed to shut off gas supply in case of flame, power or fan failure.

DESCRIPTION — Unit includes heater, fan, motor, drive, safety devices, temperature controller. Heating capacity of 125,000 Btu per hr. Suitable for temperatures up to 350° F. Bricklined combustion chamber affords complete combustion of gas. Fan capacity is 1000 cu. ft. of air per min. Hot air can be circulated for greater fuel economy. Both burner output and air volume can be regulated for progressive temperature control and air circulation.

Temperature controls are either indicating or non-indicating type, as desired.

SOURCE — Manufactured by Gas Appliance Service, Inc., Dept. CP, 1211 Webster Ave., Chicago 14, Ill. . . . or for more information check CP 5910 on handy form, pages 2 and 3.

★

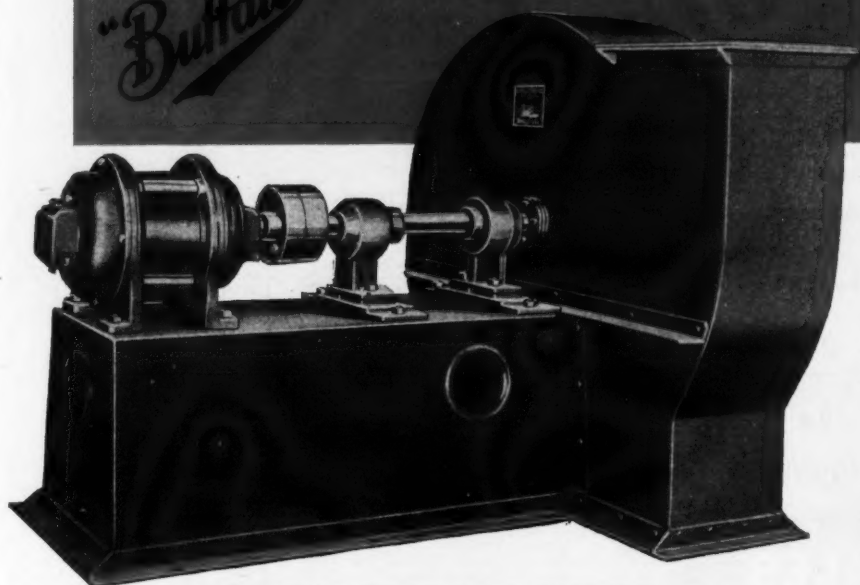
Shows Short-cuts, Proper Electrodes, Rods, in Reclamation Welding, Hard-facing

Colored, 28-page bulletin tells how to keep many types of equipment operating and producing through conservation welding and hard-facing. Literature describes manufacturer's line of ferrous and non-ferrous alloy rods and electrodes, and presents typical uses in welding and hard-facing problems. Photographs and drawings supplement text. Electrodes are used for AC or DC current. Complete characteristics and specifications of each rod and electrode are listed. Many proved, ingenious short-cuts in welding procedures are shown.

Alphabetical reference index tabulates exact rod to use for specific applications in brick, cement, coke and gas, mining, lumber and paper and other industries. Issued by the American Manganese Steel Div., American Brake Shoe Co., Dept. CP, Chicago Heights, Ill. When inquiring specify CP 5911 on handy form, pages 2 and 3.

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"Handle **CORROSIVE FUMES** with Economy in
RUBBER-LINED EXHAUSTERS"



"BUFFALO" RUBBER-LINED EXHAUSTER

WHAT FUMES DO YOU HANDLE?

● There's a "Buffalo" Rubber-Lined Fan ready to cut your fume-handling costs to 1/3rd to 1/12th. Write us about your problem — we'll give you a prompt and accurate answer on it.

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BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.
Branch Offices in All Principal Cities

FANS
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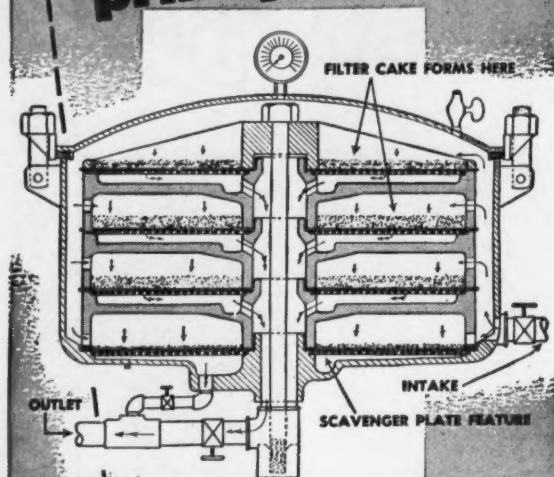
EQUIPMENT FOR

- ★ VENTILATING
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- ★ AIR WASHING
- ★ EXHAUSTING
- ★ BLOWING
- ★ FORCED DRAFT
- ★ INDUCED DRAFT
- ★ PRESSURE BLOWING
- ★ CLEANING
- ★ DRYING

CUTTING AIR COSTS IN EVERY BRANCH OF INDUSTRY

When inquiring check CP 5912 on handy form, pgs. 2-3

the horizontal plate principle



... makes these the "filters that filter all liquids"—

SPARKLER Horizontal Plate FILTERS

... here's the story:

- Sparkler Horizontal Plate Filters handle any liquid from heavy varnishes to light alcohols, including products such as acids, oils, beverages, milk, pharmaceuticals, plating solutions, water, etc.
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MUNDELEIN, ILLINOIS

When inquiring check CP 5913 on handy form, pgs. 2-3

Discussed in This Issue ---

MACHINERY, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of material, instrument, or processing equipment. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.



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Vent Valves

Black, Sivalls & Bryson Vent Valves are designed for positive protection against vapor losses in the storage of benzol, alcohol, gasoline and other products most economically stored under slight pressure.

B S & B Vent Valves are engineered carefully for both pressure and vacuum relief. An exclusive, flexible gasket provides a tight seal for ordinary pressures. When over-pressure occurs, the hinged valve-cover lifts, breaking seal and releasing vapors till normal pressure is restored. Excessive vacuum causes atmospheric pressure to lift gasket, permitting enough in-breathing to return pressure to normal.

Standard model B S & B Vent Valves are made with cast-iron body and cast aluminum cover — also available in bronze, monel, stainless steel and combinations of these metals. May be used in large sizes as combination valve and manway opening — frequently utilized as supplementary relief valve.

Address Special Products Division, Black, Sivalls & Bryson, Inc., Power and Light Bldg., Kansas City 6, Mo.

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- Pressure Tight
- Assured Control
- Automatic Relief
- Vacuum Protected
- Simple, Effective

SPECIFICATIONS				
Model Number	Size, Inches	Standard Opening Pressure, Pounds	Maximum Opening Pressure, Pounds	Standard Opening Vacuum, Pounds
2VW	2	3	10	1/2
3VW	3	3	10	1/2
4VW	4	2	10	1/2
6VW	6	2	10	1/2
8VW	8	2	10	1/2
10VW	10	2	10	1/2
12VW	12	2	10	1/2
16VW	16	2	8	1/2
20VW	20	2	6	1/2
24VW	24	1 1/2	4	1/2

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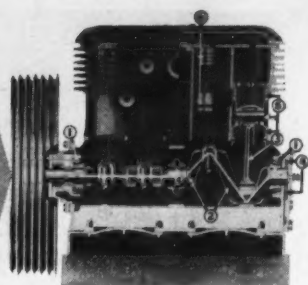
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RELIABILITY

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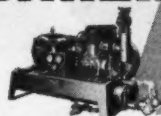
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**NEW PLASTIC
FLOOR PATCH
SETS INSTANTLY**



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JUNE, 1948

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Monosodium Glutamate Originated in Japan

Monosodium glutamate came to this country from the orient, where it was discovered by Dr. K. Ikeda of Tokyo University. He discovered that an edible seaweed, long used in Japanese cooking, contained glutamate.

Glutamate is made in this country from wheat gluten or from by-products of the beet sugar industry. It is manufactured at present by three companies, with a fourth soon to begin operation. (Associated Food and Container Institute — 1849 Pershing Rd., Chicago.)

★

Vinyl Sheeting Has Leather-like Appearance

A new plastic sheeting with the appearance of fine-grained leather is expected to enjoy wide use as a covering for furniture, wall panels, floors and wainscoting. The material is described as a clear vinyl sheeting, the leather-like look resulting from a decoration on the under side of the vinyl.

The material is called Blanchardized Vinylite and is marketed by the United States Plywood Corporation, 55 W. 44th St., New York, N. Y. Flammability tests show the material does not support combustion and displays self-extinguishing characteristics.

★

Blown-Out Fuse Lights Up

A new-type fuse incorporates a tiny incandescent lamp which lights up when the fuse goes out, making it easy to identify it from others that are still good. (Elec. Mfrs. Information Center, 155 E. 44th St., New York)

★

Two Fingered Electric Plug Is Easier to Remove

A new design electric plug, that is easily removed from the socket, is molded so as to provide two good sized holes for the fingers. It is molded of Brown Durez by Thyco Electrical Products and is approved by Underwriters Laboratories. (Durez Plastic News, North Tonawanda, N. Y.)

★

Porcelain Enamel Wallpaper

Porcelain enamel "wallpaper" in rolls that can be cut with tin snips is applied to walls with a special cement. It is made by coating 32 gauge steel with thin, firmly-bonded porcelain enamel. (Baltimore Porcelain Steel Co., Baltimore.)

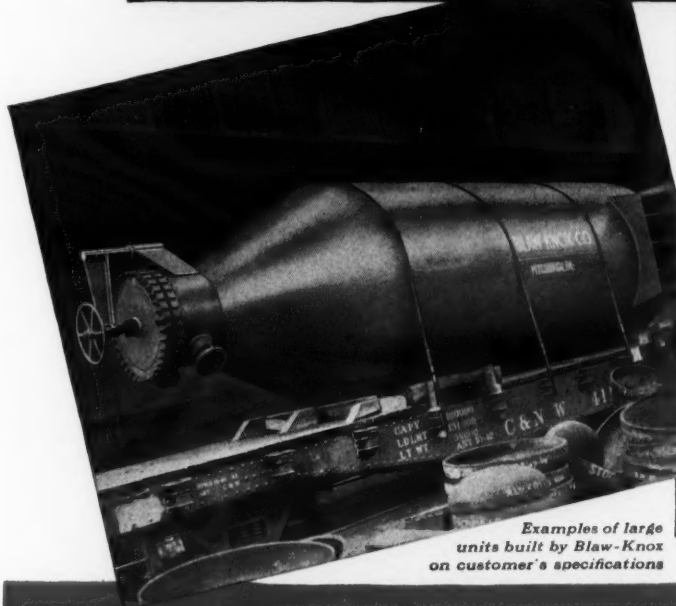
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Oil Cans Standard Measure in East Indies

Oil cans are so widely used in the Netherlands East Indies that the government has made cans legal units of measure. (Continental Can Co.)

For more information on product advertised at right, specify CP 5917 . . . see information request blank between pages 2-3.

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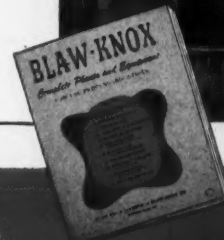
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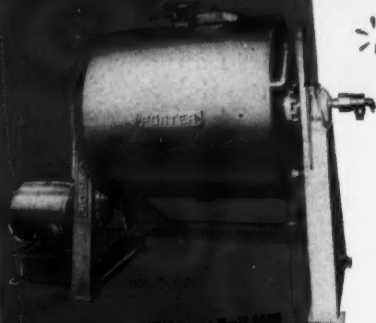
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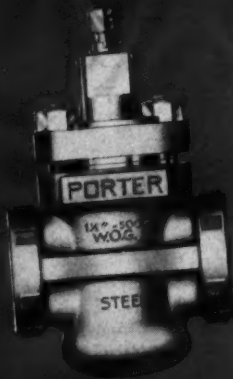
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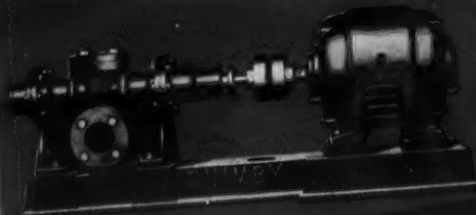
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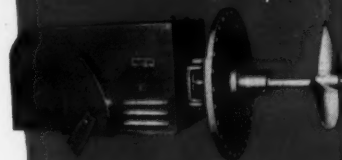
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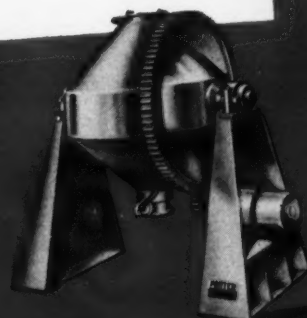
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